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THE FIFTY-FOURTH YEAR.

Companion to the Almanac;

OR,

YEAR-BOOK

OF

GENERAL INFORMATION

FOR

1881.

PART I.

GENERAL INFORMATION ON SUBJECTS OF METEOROLOGY, FINANCE, SOCIAL ECONOMY, HOSPITAL MANAGEMENT, PARKS AND OPEN SPACES, RAILWAY AND CANAL SCHEMES, AND TRADE.

PART II.

ARCHITECTURE AND PUBLIC WORKS, SCIENCE, PAINTING, MUSIC, PHILANTHROPY, LEGISLATION, STATISTICS, AND CHRONICLE OF 1879-80.

LONDON:

PRINTED FOR

THE COMPANY OF STATIONERS,

AND SOLD BY J. GREENHILL, AT THEIR HALL, LUDGATE HILL.

PRICE TWO SHILLINGS AND SIXPENCE; OR, FOUR SHILLINGS BOUND WITH THE BRITISH ALMANAC.

WEIGHTS AND MEASURES.

1. MEASURE OF LENGTH.

12	Inches	=	1 Foot
3	Feet	=	1 Yard
5½	Yards	=	1 Rod or Pole
40	Poles	=	1 Furlong
8	Furlongs	=	1 Mile
69 1/10	Miles	=	1 Degree of a Great Circle of the Earth.

An inch is the smallest lineal measure to which a name is given, but subdivisions are used for many purposes. Among mechanics, the inch is commonly divided into *eighths*. By the officers of the revenue, and by scientific persons, it is divided into *tenths*, *hundredths*, &c.

Particular Measures of Length.

A Nail	= 2¼	Inches	used for measuring cloth of all kinds.
Quarter	= 4	Nails	
Yard	= 4	Quarters	
Ell	= 5	Quarters	
Hand	= 4	Inches	used for height of horses.
Fathom	= 6	Feet	used in measuring depths.
Link	=	In. 92 hdths.	used in Land Measure to facilitate computation of the content, 10 square chains being equal to an acre.
Chain	= 100	Links	

2. MEASURE OF SURFACE.

144	Sq. Inches	=	1 Sq. Foot
9	Sq. Feet	=	1 Sq. Yard
30¼	Sq. Yards	=	1 Perch or Rod
40	Perches	=	1 Rood
4	Roods	=	1 Acre
640	Acres	=	1 Sq. Mile

3. MEASURES OF SOLIDITY AND CAPACITY.

Division I.—Solidity.

1728	Cubic Inches	=	1 Cubic Foot
27	Cubic Feet	=	1 Cubic Yard

Division II.—Capacity.

4 Gills	= 1 Pint	=	34⅔	cub. ins., nearly.
2 Pints	= 1 Quart	=	69⅓	——
4 Qts.	= 1 Gallon	=	277¼	——
2 Gall.	= 1 Peck	=	554½	——
8 Gall.	= 1 Bushel	=	2218⅓	——
8 Bush.	= 1 Quarter	=	10¼	cub. feet, nearly.
5 Qrs.	= 1 Load	=	51⅓	——

The four last denominations are used for dry goods only. For liquids several denominations have been heretofore adopted, viz.:—For Beer, the Firkin of 9 Gallons, the Kilderkin of 18, the Barrel of 36, the Hogshead of 54, and the Butt of 108 Galls. Flour is sold nominally by measure, but actually by weight, reckoned at 7 lbs. avoirdupois to a gallon.

4. MEASURE OF WEIGHT.

Division I.—Avoirdupois Weight.

27 11/32	Grains	= 1 Drachm	= 27 11/32 gr.
16	Drachms	= 1 Ounce	= 437½ —
16	Ounces	= 1 Pound (lb.)	= 7000 —
28	Pounds	= 1 Quarter (qr.)	
4	Quarters	= 1 Hundredweight (cwt.)	
20	Cwt.	= 1 Ton	

This weight is used in almost all commercial transactions, and in the common dealings of life.

The particular weights belonging to this Division are as follow:—

14 Pounds	= 1 Stone	= 0	0	14	Used in the Wool Trade.
2 Stone	= 1 Tod	= 0	1	0	
6½ Tod	= 1 Wey	= 1	2	14	
2 Weys	= 1 Sack	= 3	1	0	
12 Sacks	= 1 Last	= 39	0	0	

Division II.—Troy Weight.

24	Grains	= 1 Pennyweight	= 24 gr.
20	Pennywts.	= 1 Ounce	= 480 —
12	Ounces	= 1 Pound	= 5760 —

These are the denominations of Troy Weight when used for weighing gold, silver, and precious stones (except diamonds). But Troy Weight is also used by Apothecaries in compounding medicines, and by them the ounce is divided into 8 drams, and the dram into 3 scruples, so that the scruple is equal to 20 grains.

For scientific purposes the grain only is used; and sets of weights are constructed in decimal progression, from 100,000 grains downwards to 1/100 of a grain.

The *carat*, used for weighing diamonds, is 3½ grains. The term, however, when used to express the fineness of gold, has a relative meaning only. Every mass of alloyed gold is supposed to be divided into 24 equal parts; thus the standard for coin is 22 carat fine, that is, it consists of 22 parts of pure gold, and 2 parts of alloy.

5. ANGULAR MEASURE.

or, Divisions of the Circle.

60	Seconds	= 1 Minute
60	Minutes	= 1 Degree
30	Degrees	= 1 Sign
90	Degrees	= 1 Quadrant
360	Degrees, or 12 Signs	= 1 Circumference

6. MEASURE OF TIME.

60	Seconds	= 1 Minute
60	Minutes	= 1 Hour
24	Hours	= 1 Day
7	Days	= 1 Week
28	Days	= 1 Lunar Month
28, 29, 30, or 31	Days	= 1 Calendar Month
12	Calendar Months	= 1 Year
365	Days	= 1 Common Year
366	Days	= 1 Leap Year

In 400 Years, 97 are leap years, and 303 common.

WEIGHT OF ENGLISH COINS.

	dwt.	gr.
Gold.		
Sovereign	5	3¼
Half Sovereign	2	13 7/8
Double Sovereign	10	6½
Silver.		
Crown	18	4 4-11
Half Crown	9	2 2-11
Florin	7	6 6-11
Shilling	3	15 3-11
Sixpence	1	19 7-11
Fourpence	1	5 1-11

HARRISON AND SONS, PRINTERS IN ORDINARY TO HER MAJESTY, ST. MARTIN'S LANE.

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WEATHER FORECASTING.

THERE is no subject under the sun which excites a more general interest than weather. Not only are all our amusements and even our most serious occupations, more or less dependent thereon, but the occurrence of a season like that of 1879 most seriously affects the welfare of millions, and even the prosperity of nations.

It is undeniable that the most immediate practical use of the science of meteorology is the foretelling of weather. The most abstruse discussions of meteorological data have hardly another object than the determination of the average conditions of the climate of each place, and of the amount of variability to be expected in the daily and annual course of each element, such as Temperature or Rain. What is this but forecasting climate?

Again, in marine meteorology we search laboriously through ships' logs to find the true distribution of meteorological conditions over the ocean in order to tell the seaman, in Basil Hall's words, "where to find a fair wind and where to fall in with a favourable current." What is this but implied weather prophecy?

In all ages men have been looking for any possible key to unlock the mystery of coming weather, and the ready sale of Mathieu de la Drome's "Triple Almanach" in France, and of Saxby's weather prophecies in this country, give us a proof, if proof be needed, of the popularity of any attempts in this direction.

More than two centuries ago Mr. Pepys, under date April 4,

1668, writes : "We stayed in the green room, when the Duke of York did tell us what rules he had of knowing the weather, and did now tell us we should have rain before to-morrow (it having been a dry season for some time), and so it did rain all night almost ; and pretty rules he hath, and told Brouncker and me some of them, which were such as no reason can readily be given for them."

It must be added that Mr. Pepys' faith in the Duke's infallible weather wisdom got a rude shock within forty-eight hours, for he had to lend His Grace his cloak when he was caught in a shower in crossing the Park, and so spoilt a new suit of clothes of his own.

Saxby is not the only publisher of weather prophecies in this country. There are four or five persons who regularly issue forecasts a month in advance, while at the Meteorological Office a constant stream of infallible receipts for predicting weather pours in, not a single one of which has ever possessed any practical value.

The idea of forecasting on scientific principles is an old one. In fact nearly a century ago, Lavoisier, who was guillotined in 1794, expressed his conviction that it would be possible to publish in the newspapers, announcements in the way of weather prediction which would be very valuable. This suggestion slept for a long time, and the first actual proposal of the same nature was made about thirty years ago, almost simultaneously in the United States and in this country. The credit in Europe belongs to Mr. John Ball, F.R.S., who at the meeting of the British Association at Swansea, in 1848, proposed a system of collection and issue of reports very similar to that now in operation.

Weather prediction was practically first instituted in connection with storm warnings ; and it was the bare ideas, firstly that the storm which wrought such fearful havoc among the shipping at Balaclava in November, 1855, might have been foretold, and secondly that in 1858 the captain of the "Royal Charter" might have been forewarned of, and therefore forearmed against, the gale that caught him in his fatal anchorage off the north coast of Anglesea, which induced the respective Governments of France and England to establish offices for the purpose of weather prediction.

The earliest actual attempts in this direction were made about 1860 in Holland, England, and France ; Professor Buys Ballot, of Utrecht, being first in the field ; and as far as this country is concerned it was the marvellous energy and personal popularity of

Admiral Fitz Roy which floated the novel venture into public favour.

Admiral Fitz Roy's forecasts, as distinguished from his storm warnings, extended over three days, a period universally recognized to be too long, in the present state of meteorological knowledge ; accordingly when at Christmas, 1866, the office was remodelled, the forecasts were discontinued, and they are never likely to be resumed on the precise basis originally proposed.

My readers may now ask, what is forecasting, and what are the principles on which the practice is conducted at present ?

In the first place, information is collected from a number of stations situated all over the country, but chiefly on exposed parts of the coast. At these stations observations are taken of the barometer, the thermometer, the hygrometer, and of wind, rain, clouds, and weather.

The instruments at these stations are all most carefully tested for their accuracy before their issue from the Meteorological Office, and the stations are regularly inspected every year, to ensure that no systematic neglect of duty shall exist. The observations are taken thrice a day, at definite epochs of Greenwich time, 8h. a.m., 0h. 45m. p.m., and 6h. p.m., and are telegraphed up to London. It is, however, not only from British stations that such reports are received by the Meteorological Office, but also from a number of points on the north-eastern coasts of the Continent, and from some in the interior of France. In fact, in every country where meteorological organizations exist, and where weather is studied, it has been found necessary to institute arrangements for the collection of information from stations outside the frontier—weather is not ruled by the necessities of political geography.

The observations are laid down in figures on geographical charts, of which the main object is the representation of the conditions of barometrical pressure and of wind, all over the area. One of these charts is drawn for every epoch of observation. Thus in London three are drawn daily for the three observations already mentioned.

As soon as these charts were in existence it was seen that certain broad principles were traceable throughout them. The barometrical readings were never exactly equal all over the chart, and, moreover, the greater the disturbance of atmospherical equilibrium, the greater was the motion of the air or the stronger was the wind.

If on any of these charts we draw a line or curve through all the places which show the same barometrical reading, we get what is called an "isobar" or "isobaric line," or line of equal pressure. It is these lines which give the character to the daily charts, and by inspection of them a meteorologist can at once learn what weather is prevailing generally.

When we say that pressure over the chart is unequal, we mean of course that readings vary irregularly, so that in one part of the map the barometrical readings will be lower than over the region all about it, while over another district we shall find an excess of pressure as compared with that at adjacent stations. Round each of these centres of disturbance, as we may call them, the isobars will lie in roughly symmetrical curves, and the wind will blow the more freshly the closer the lines, which are drawn for each tenth of an inch, lie together. The direction of the wind in the northern hemisphere will be always such as to leave the lowest barometer on its left hand side.

This rule for the wind is called Buys Ballot's Law, and it underlies all weather prediction. If we reflect on it for a moment, we shall see that being told the direction of the wind, we can tell by means of this law the distribution of pressure, and *vice versâ*.

We have said that pressure distribution exhibits systems of defective and excessive pressure. The former are called "cyclones," and the air flows round and in upon these *against watch hands*. The latter are called "anticyclones," and the air flows round and out from these *with watch hands*. Here, too, we must put in the qualification "in the northern hemisphere," for in the southern these relations of the direction of rotation of the wind are exactly reversed.

There are fundamental differences between the two systems. For some reason, which mathematicians have not yet explained, the disturbance of pressure is much greater in cyclones than in anticyclones; and the isobars lie much closer together in the former than in the latter case. Consequently, from what has just been said, the winds are much stronger in cyclones than in anticyclones.

The weather conditions, too, are widely different in the two cases. In cyclones, the atmosphere is, on the whole, very damp, and the sky cloudy. These conditions produce warmth in winter and cold in summer.

In anticyclones, on the contrary, the atmosphere is very dry,

and the sky is either clear or else only obscured by fog—never by dense cloud—conditions associated with heat in summer and hard frost in winter.

These statements are, of course, of a very general nature, but they furnish the key to the interpretation of most of the weather changes which pass over us.

The systems of which we speak are often of very large dimensions, and it is comparatively seldom that we find a specimen of either fully developed in the charts which appear in the *Times* or other papers. For the most part, on such charts we only see portions of curves. But when we lay down the observations on charts for large areas, such as the entire North Atlantic, we find that these two classes of systems of which we have been treating have a mutual relation *inter se*, the cyclones apparently being governed in their motion by their position with regard to the anticyclones.

One broad principle may be taken for granted in the interpretation of all European weather, and that is, that all changes have a general tendency to propagate themselves from west to east. Now by this it is not meant to imply that all our weather comes over, ready made, from the continent of America, or that we have nothing to do but study the warnings sent by the *New York Herald*, in order to predict every shower which falls in England. What is meant is, that it is far more likely that weather prevailing in Ireland will extend to England subsequently, than that a weather system will make an advance in the opposite direction.

When we say this, it will be obvious to all that what we most urgently need is, information from stations lying to the west of Europe; but, at present, we have no chance of cables being laid to the Azores, or to the Faroes and Iceland. Newfoundland, and *à fortiori* the continent of America, are too far off, for as disturbances take, at the least, two or three days to cross the ocean, and are constantly undergoing modification in their character *en route*, information of the existence of a storm in the United States on a given day will not enable us to predict positively its advent on our coasts three or four days later.

This has been abundantly proved by the experience of the *New York Herald* warnings. Storms are repeatedly announced as threatening the entire north-west coasts of Europe, and fulfilment of the prediction is popularly claimed in case of the occurrence of a local summer squall with the same confidence as when

a heavy winter gale sets in near the appointed date. Meteorologists are yet far from being able to send practically useful warnings from America, and we in these islands are therefore left to our own devices, and must collect the best information we can from our own west coasts.

If we then hold fast in our minds this idea of a motion from west to east as the most usual, we may see what is known of weather changes more in detail.

In the first place, cyclones are much more common than anticyclones, and they move much faster, producing successive weather changes much more rapidly, so that they are more interesting than their more sedentary colleagues.

A cyclone is a system of wind circulating with a spiral motion round a district of low barometrical readings. On the eastern side of the system, which is usually its front, the wind is southerly; on the northern, easterly; on the western, northerly; and on the southern, westerly; but it is comparatively seldom that the system is perfectly developed over the area of these islands. In the part of the system where the winds blow from south-east and south the sky is densely covered with clouds and the weather is wet, and in winter warm. As the wind draws through south-west to west, and north-west in the rear of the cyclone, the sky clears and the weather becomes cold, often with a fall of temperature which is almost instantaneous. The rain, which with the warm southerly winds began as a mist, turning to a continuous downpour, comes down when the wind is north-west in heavy showers, often accompanied by electrical explosions and hail.

In an anticyclone the motion of the wind is exactly the opposite in direction to that which has just been described, and as to amount there is hardly any movement at all. The sky is clear, or, at most, only obscured by fogs. Rain seldom or never falls, except in the rear or on the western side of the system, the region characterised by fine weather in cyclones.

Now the whole science, if I may call it so, of forecasting, consists in the attempt to gain an insight into the probable size and shape of the cyclonic disturbances which pass over us; for, when we have anticyclones to deal with, we can almost predict the same weather day after day.

All these circumstances of the behaviour of cyclones are subject to serious modification, according to the nature of the country over which the cyclones have to pass. Thus, the wind will blow with much less force inland than on the sea-coast,

owing to friction; while we all know that shower-clouds and thunderstorms will drift along the hill ridges and leave the separating valleys untouched by their contents.

Forecasting therefore depends mainly on an assumption of knowledge of the precise features of pressure distribution with which we have from time to time to deal. If the type is decidedly cyclonic or anticyclonic the task is comparatively simple; but when we are on the debatable land between two systems, there is always considerable uncertainty as to which influence will gain the upper hand.

What is meant by the task being at any time simple is this: If, on looking at the evening's chart in the *Times*, we see that a small cyclonic system is advancing over the south of England, and that the southerly winds are just beginning in London at breakfast time, we know that the weather will certainly be wet in the early part of the day, but will very possibly clear towards evening.

If one cyclone is following after another very quickly, the interval between them partakes of the nature of an anticyclone; for the reader will not have forgotten that in the rear of the cyclone, with its north-west winds, the sky clears and the weather becomes cold—the typical anticyclonic conditions. If, then, we see on the chart the appearance of a second system of southerly winds in the west, we know that a second cyclonic area is approaching us, and that, after a short, clear interval the rain will recommence.

Again, if after a wet morning, with southerly winds, we notice that the rain is coming down much more heavily, we may certainly anticipate a sudden shift of wind to north-west, with a cold but fine afternoon.

It would be easy to multiply examples of various conditions of weather which admit of easy forecasting, if our space allowed, but for this we must refer our readers to a small manual published by the Meteorological Office under the title of "Aids to the Study and Forecast of Weather." This little work has been compiled by the Rev. W. Clement Ley, a gentleman who has for many years devoted a large amount of attention to weather study. The book is published by Messrs. Stanford, of Charing Cross.

On the whole, we may say that if the weather reports indicate with sufficient exactness the localities where the highest and lowest pressures in our neighbourhood are respectively to be found, we can use our own judgment as to what the results on

our weather will be, considering the distance which intervenes between the station for which we are forecasting and these centres of high and low pressure. In saying this, however, we assume that the systems of disturbance are more or less stationary, which is rarely the case, and it is to ignorance of the rate and direction of motion of storms that most of the failures in forecasting are due.

In fact, to forecast with confidence we require to know the size and shape, and the rate and direction of advance, of a cyclonic disturbance, and also whether it is increasing or decreasing in intensity. Imperfect knowledge of any one of these particulars will materially affect our reasoning, and unfortunately there is not one of them which can be ascertained correctly in advance.

In addition to these elements of uncertainty in the science of weather, its students labour under an enormous disadvantage in the fact that they have no means of gaining exact information of what is going on in the atmosphere over their heads. We constantly see the clouds moving rapidly across the sun and moon, while at the earth's surface there is hardly a breath of air. Conversely, it has been remarked on various occasions of violent whirlwinds close to the ground that even low clouds betrayed hardly any signs of disturbance.

It appears, therefore, that we may have over our heads successive strata moving in different directions, and of which we can hardly gain any information at all, and it can easily be seen that in default of such knowledge much of our reasoning must be little better than guesswork. Some meteorologists, and among them Mr. Clement Ley, whose name has already been mentioned, suggest observations of the motion of *cirrus* or "mare's-tail" clouds as a panacea for the defects of weather observation systems, as regards the movements of the upper strata, and it is undeniable that these gentlemen have much right on their side.

But leaving questions of the upper strata alone, all central meteorological offices suffer from the impossibility of obtaining exact information as to the weather prevailing at their out stations at the time the telegraphic messages were sent off. By *weather* we mean not only the mere accidental fact of its being wet or dry, but particulars as to the character, height, amount, and distribution of the clouds, and a brief summary of the opinion which an intelligent observer would form of his own weather prospects for the day, at his own locality, at the time he sent off his report. In fact, we in the office in London, dealing with our fifty daily telegrams, are much in the position of a physician called upon to

prescribe for a patient at a distance when he has only received a garbled account of the symptoms, drawn up by some one who has only paid a passing visit to the sick man.

However, with all these defects, the system of forecasting is carried on with a good measure of success. The United Kingdom is divided into eleven districts, and a forecast is drawn for each of these twice a day. Now, as showers are essentially local, it is evident that a forecast for half a dozen counties must fail in accuracy for local conditions.

The results of the first year's forecasting, ending with April, 1880, as estimated by the Meteorological Office, have yielded above 25 per cent. of unqualified successes. In addition, one-half of the entire number of predictions were so nearly correct as to justify their being classed as successful, while 25 per cent. of the whole appear as misses, 5 per cent. being utterly astray. The proportion over the different districts of the United Kingdom was pretty nearly uniform, the extreme variations being, on the one hand, a total success of 83 per cent. in the south of England, and, on the other, of 68 per cent. in the west of Scotland. Such a difference is but natural, for as London is in the south-east corner of the kingdom, it is most distant from the extreme north and north-west stations, so that the task of predicting the weather for such localities is most difficult.

Such a measure of success as has just been indicated is very encouraging for the first year of the system, and, as a proof that the figures are not coloured by any wish of the Office to vaunt the utility of its operations, we may quote the independent experience of some of the largest scientific agriculturists of the country.

In the summer of 1879 the Council of the Meteorological Office made an attempt to give their forecasts a fair practical trial: they applied to the chief agricultural societies in the three kingdoms for the names of gentlemen who would allow forecasts to be sent to them *gratis* during the hay harvest, and would further engage to keep an account of the results and transmit it to London.

This proposal got wind, and announcements appeared in various newspapers to the effect that the Meteorological Office would supply gratuitous forecasts to all farmers during the whole harvest. The Office received plenty of applications to be placed on this list, but it need scarcely be said that on the score of expense it was quite impossible to comply with these requests.

The outcome of this experiment was much the same as that of the more extensive examination above mentioned, and this is a most valuable confirmation of the truth of the figures given by the Office, for the recipients of the hay harvest forecasts could have had no possible interest in colouring their reports too highly.

The actual figures for the season of 1879 were as follows :—

Districts.	Complete success.	Partial success.	Partial failure.	Total failure.	Total percentage of success.
Scotland, N.	47	34	11	8	81
,, E.	44	31	16	9	75
England, N.E.	51	30	11	8	81
,, E.	47	23	20	10	70
Midland Counties	65	18	13	4	83
England, S.	55	33	12	0	88
Scotland, W.	44	23	14	19	67
England, N.W.	51	23	18	8	74
,, S.W.	51	21	17	11	72
Ireland, N.	43	37	9	11	80
,, S.	27	32	26	15	59
Mean for all districts ...	48	28	15	9	76

In each district the forecasts were sent to two or three different localities, and the figures above stated are those given by the recipients of the telegrams.

Several of the recipients took great interest in the experiment, and, in a letter addressed to the Royal Agricultural Society by one of the observers, and forwarded by the Society to the Office, the writer says :—

"I have much pleasure in giving you some particulars of the weather forecasts which were obligingly supplied to me from the Meteorological Office, during the hay and corn harvest months last season. Their remarkable accuracy rendered them most popular over a considerable agricultural district in my neighbourhood, and their daily arrival was looked for each day with much interest, not only by the farmers themselves, but by their labourers also, who could be seen collected in groups at each station after the day's labour to learn the prospects of promise for the following day. I have reason to believe these forecasts were of much use and real practical value during the season, so fickle and disastrous generally. The better classes were also much interested, and many could be seen driving in their carriages in the direction of the stations to inform themselves for the following day's plans."

The results of the storm warnings issued to the coasts are equally satisfactory ; and as these values have been regularly

printed in the reports of the Meteorological Office for a period of more than ten years, an inspection of them will show that the service is maintained at a constant standard of efficiency.

The following is a general summary of the results :—

Years.	Total number of warnings issued.	Percentage of			
		Warnings justified by gales.	Warnings justified by strong winds.	Total warnings justified.	Warnings not justified by subsequent weather.
1870	349	46·7	21·7	68·4	22·4
1871	299	46·0	17·7	63·7	22·0
1872	379	61·0	19·5	80·5	11·9
1873	250	45·2	34·0	79·2	16·8
1874	317	45·4	32·8	78·2	16·4
1875	248	41·1	35·1	76·2	21·0
1876	265	61·1	21·5	82·6	11·7
1877	475	53·3	25·9	79·2	16·4
1878	485	56·7	20·8	77·5	17·9
1879	509	50·5	25·1	75·6	20·6

It must, however, be remembered, that these storm warnings do not profess to give the seaman long notice of an approaching gale. It is not until the disturbance shows itself on our coasts that we can with any confidence announce the danger, and consequently it is not unfrequently the case that storms break on our exposed western and northern coasts before the Office is able to give warning of them. These coasts are, however, far less frequented by shipping than are the English and St. George's Channels and the east coast of England, and for these latter shores the warnings, are for the most part, timely enough, and the general average of results is thereby raised.

In conclusion, we must only say that, considering the exposed situation of these islands on the north-west coast of Europe, the Meteorological Office is able to do right good work in the way of predicting weather. Hardly a storm visits our coasts or those of Northern France or Germany of which it does not give timely warning, and it is able to render a good account of work done in the way of predicting ordinary weather.

Our space will not allow of entering in detail into the methods and principles on which the work is conducted, but when we look at the state of meteorological knowledge in 1880, and compare it with that prevailing generally in 1860, we may fairly congratulate ourselves on having made some slight progress in the discovery of some of Nature's laws.

ROBERT H. SCOTT.

SKETCH OF THE HISTORY OF THE ROYAL OBSERVATORY, GREENWICH.

THE establishment of the Royal Observatory at Greenwich commenced in 1675, the foundation-stone being laid on the 10th of August of that year,* and the course of observations was entered upon there by Flamsteed the following year, his appointment dating from Michaelmas, 1674, and his active work being carried on in 1675 and 1676 at the Queen's House, Greenwich, until the Observatory was sufficiently advanced to permit of observations being made in it. It is matter of just pride to us as Englishmen, that good solid work of the highest benefit to astronomy should have characterized the operations at that time-honoured establishment, even from its commencement. In the hands of Flamsteed, indeed, this could hardly be otherwise. Circumstances, however, of a most painful kind to all lovers of science also took place during his tenure of the office of Royal Observator or Mathematician (the latter term in its abbreviated form Math. Reg., or simply M.R., was the one most frequently used by himself). Singularly enough, it was in the year of the accession of the present Astronomer Royal, that the late Mr. Baily published an "Account of the Rev. John Flamsteed," consisting chiefly of memoranda of his own, to which is appended a large collection of letters by himself and others, making known the fact of a long and most serious misunderstanding between Flamsteed on the one hand, and Newton and Halley on the other. Flamsteed's evident wish was to lay all or the greater part of the blame upon Halley; but there scarcely seems sufficient justification for the very hard names he applied to his future successor who, in writing to him under date June 23rd, 1711, subscribed himself, "Your quondam friend, and not yet profligate enemy, as you call me." Nevertheless, there *is* ample proof that Flamsteed really was hardly dealt by. Probably we shall not be far in error if we conclude that the ill-feeling in his mind was aroused by finding that the independence of his position was interfered with much more than he expected. He was placed in the Observatory with no funds to carry on his labours, save the very meagre salary of 100*l.* per annum; had to provide instruments for himself, and no doubt thought his com-

* We may remind our readers that this was a few weeks only after the commencement of the metropolitan cathedral, the foundation-stone of the present St. Paul's having been laid on the 21st of June of the same year.

mission was to labour (which he most zealously did) for the attainment of a definite object of research, which he was entitled to publish when completed in his own way, and according to his own ideas. Instead of which Newton, anxious to obtain the observations he thought necessary for the completion of his lunar theory and other objects, urged on the production of these according to his own wishes, obtained from the Crown a right to act with other members of the Royal Society as official Visitors of the Observatory, and at last, assisted by Halley, took possession of Flamsteed's observations, and published a large part of them in a form by no means acceptable to the author, who also complained that they had been obtained from him for this purpose in a manner utterly unfair. Soon after the accession of George I, and the death of the Earl of Halifax (Newton's great supporter at Court), Flamsteed contrived to get hold of nearly all the copies of this edition, and destroyed almost the whole as a "sacrifice to heavenly truth." He proceeded to bring out a complete edition under his own eye, and lived to nearly, but not quite, finish it, so that it was at last published by his widow a few years after his death, with the assistance of two gentlemen who had long helped him.

Flamsteed died on the last day of 1719. His own wish in early life had been to follow the profession of a country clergyman; a special circumstance delayed his ordination, and in the meantime, Sir Jonas Moore had obtained his appointment at Greenwich from the King. Nevertheless, he took orders in London the same year (Easter, 1675). We are told that his salary as Astronomer was for this reason fixed at a lower sum than it would otherwise have been, it being presumedly supposed that the appointment was compatible with preferment in the Church. But it does not appear that he held anything in that way until the year 1685, when the Ministry nominated him to the Rectory of Burstow, in Surrey, on the death of Dr. Cooke. Flamsteed held that living until his death, spending nearly every year a few weeks in the summer there. The only existing records of his tenure (besides the fact of his rebuilding the rectory house), are his dismissal of a curate because he had "signalised himself so much for the High Church," and a small charitable bequest left by him for the poor of the parish.

The natural wish to see the last resting-place of so eminent an astronomer, induced us to pay a short visit to Burstow last summer. It is situated between three and four miles from

Horley Station to the east, and therefore near the source of the "nousling Mole,"* whose beautiful stream we had so often admired at Mickleham and Cobham. Burstow Church is a very ancient edifice, the first foundation probably dating from before the Conquest. The interior urgently needs restoration; but what chiefly surprised us was to find in the chancel within the altar-rails, a stone in very good preservation recording the burial below of Flamsteed's predecessor, Dr. Cooke (in Latin, with the addition of Ἐγειρομαι in Greek), but nothing whatever to indicate the sepulture of the astronomer. On personal application to the present rector (the Rev. T. B. Sikes), he kindly showed us the parochial register, whereby it appeared that Flamsteed was buried there on the 12th of January, 1720 (the interval of twelve days after his death no doubt arising from the fact that he died in Greenwich), and his widow on the 17th of August, 1730, but stated that he knew of no clue to the exact spot,† though he had been informed that village tradition placed it by the side of the grave of Dr. Cooke. Flamsteed was succeeded at Burstow, as is well known, by the Rev. James Pound, whose nephew, the famous Dr. Bradley, became Astronomer Royal after the death of Halley, in January, 1742.

Of Halley himself, it does not fall within our scheme to say much here. Great and important for the progress of science (and not of astronomical science only) were his labours. But they were chiefly performed before his appointment at Greenwich. At St. Helena he formed the first southern catalogue of stars, commencing his observations there only a few months after Flamsteed began his at Greenwich, and finishing them at the end of 1678. Being on the Continent in 1680, he observed the celebrated comet of that year, in company with John Dominic Cassini, the first director of the Royal Observatory at Paris. He afterwards greatly assisted Newton in the publication of the "Principia," but from 1698 to 1703 was much abroad on voyages to determine the magnetic variation in the Atlantic, and for other purposes useful to navigation. In November, 1703, he was elected Savilian Professor of Geometry at Oxford, and in 1713 became Secretary to the Royal Society, the publication of whose "Transactions" he had already helped to superintend.

* "And Mole, that like a nousling mole, doth make
His way still underground till Thames he overtake."—SPENSER.

† We are reminded of the wish expressed, but surely not felt, by Pope:—

"—— not a stone
Tell where I lie."

To the public generally he is best known by the comet called after his name, which was observed in 1682, and which he identified with comets seen in 1531 and 1607, predicting that it would again appear about 1758. His paper on the subject was first published in the "Philosophical Transactions" for 1705, in which he says, "Unde ausim ejusdem reditum fidenter prædicere, anno scilicet 1758." (It really was first seen on Christmas Day of that year, passing its perihelion in the following March.) Halley was in his sixty-fourth year when appointed Astronomer Royal, unprovided with instruments, Flamsteed's executors having claimed those which he had used, so that, as far as is known, no observation was made by Halley until nearly the end of 1721. His observations, the greater part of which have never been published, were conducted principally for the purpose of determining the position of the moon and occasionally that of the planets. It is interesting to relate that, at the last of the meetings of the Royal Society presided over by Newton (held on March 2nd, 1727), the "Royal Astronomer" was reminded of the regulation requiring the observations made at Greenwich to be regularly and promptly published, upon which Halley excused himself from producing his lunar observations, because he wished first "to complete the theory he designed to build upon them."

We now pass on to Bradley, one of the greatest names that have presided over our national Observatory. Born in 1692 or 1693 (it is uncertain which), he was ordained in 1719, and held a living in Monmouthshire, which he resigned in 1721, on being appointed Savilian Professor of Astronomy at Oxford in succession to Dr. Keill. His great discovery of aberration at Kew and his observations at Wanstead, in Essex (at the house first of his uncle, Mr. Pound, and, after his death, of Mrs. Pound) had long since made him famous, when, on Halley's death, Lord Macclesfield, urging the appointment of Bradley as his successor, could refer to him as "one whom Sir Isaac Newton was pleased to call the best astronomer in Europe." His appointment, in February, 1742, was one of the last (if not the last) official acts of Sir Robert Walpole, but his residence in Greenwich did not commence until the following June. In 1751, the vicarage of Greenwich becoming vacant, was offered to Bradley, but declined by him because "the duty of a pastor was incompatible with his other studies and necessary engagements." So that until his death, in 1762, his best energies were devoted to the progress of astronomy at Greenwich, the face of which he may be said to

have completely changed. His second great discovery, that of the nutation of the earth's axis, was announced in 1747, after a long course of observations, and it is interesting to notice the obligations he expresses in announcing it to the mechanical skill of George Graham, who had constructed his sector and clock. Graham was now too old to render him further assistance in that way, but in 1749 the Observatory was furnished with a transit instrument and quadrants, by Bird, contrived with all the latest improvements in instrument making. From the use of these, in 1750, may be said to have commenced astronomical observing with modern accuracy and methods, so that, when the present Astronomer Royal performed the Herculean labour of reducing on one system the lunar and planetary observations of his predecessors, he made that year the *terminus à quo* he proceeded. The alteration of the style in England was arranged in 1751, and took place in 1752, but we have not space to speak of it here, and must pass on to the end of Bradley's career. A transit of Venus took place in June, 1761, and Halley had pointed out, so far back as 1716, the advantages those phenomena offered for determining the sun's parallax. Maskelyne (afterwards Astronomer Royal) went to observe this at St. Helena, and, as is well known, many other expeditions were sent for that purpose. The ingress was visible at Greenwich, but Bradley was so ill that he was obliged to depute the Rev. N. Bliss, Savilian Professor of Geometry at Oxford, to take his place, and superintend the observations. Bradley's own last observation was made in the following September. He died on the 13th of July, 1762, and was succeeded by Professor Bliss, who continued the course of observations on the same system, but only survived Bradley little more than two years, dying on the 2nd of September, 1764.

Dr. Maskelyne was appointed Astronomer Royal the following year. He had been a pupil of Bradley in astronomy, and during his tenure of the office, which lasted until his death in 1811, pursued the observations with the same undeviating regularity, much on the same system, but with several improvements in method and detail. He was the first to record transits with the degree of accuracy now always expected, and initiated the formation of a standard catalogue of stars whose places should be so well determined as to form trustworthy starting-points for those of all others. But the most important service rendered by him to astronomy was the establishment of the "Nautical Almanac," the publication of which he commenced in 1767, it

being stated as one principal object that it "will greatly contribute to make the lunar tables, constructed by the late Professor Mayer, of Göttingen, more generally useful." The places of the planets in the early volumes were derived from the tables of Halley; the eclipses of Jupiter's satellites from those of Mr. Wargentin. It would be out of place here to refer to later improvements in the "Almanac," especially as the work of its preparation after Maskelyne's time became a separate institution; from the very beginning it has been of the greatest possible use in navigation. Perhaps we may mention that, on the discovery of the planet Uranus, by Dr. Herschel, in 1781, Maskelyne was the first to announce its planetary character, Herschel having supposed that the body he had discovered was a slow-moving comet.

Maskelyne, who had taken orders in 1755, died on the 9th of February, 1811, and was succeeded by Mr. Pond, who had already become known by his skilful observations at Westbury, in Somersetshire. Under him the plan of observations was greatly enlarged and persistently pursued. He retired in 1835 (dying in September the following year, at the age of 69), and was succeeded by Professor (now Sir George) Airy, whose system of observations has been so advantageous to the progress of science that we trust it may be long continued with means and appliances still further extended and improved. Commencing with 1836, a large volume has annually made its appearance which includes, since 1840, magnetical and meteorological, as well as astronomical, observations. Our space does not permit us to enter into the details of even these last, but we may just mention that the essence of the system introduced by the present Astronomer Royal is to bring all the results into such a shape, no matter how laborious the requisite calculations may be, as to be immediately available for the purposes of physical astronomers (amongst whom he is well known to occupy a very high position himself) in improving the theories of the motions of the moon and planets. These have already reached, chiefly by the agency of the Greenwich observations, a degree of accuracy which would scarcely have been thought credible in Flamsteed's time; but modern astronomers are still eager for improvement whilst the possibility of it remains, and are almost apt to think "nothing gained if aught remains."

W. T. Lynn, B.A., F.R.A.S.

EGYPT IN LIQUIDATION.

THE latest phase of the history of modern Egypt is a record of proceedings in liquidation. In commercial life, such proceedings are notorious for troublesomeness and comparative inefficiency. The problem is, how to distribute equitably a burden of losses, or if not equitably, tolerably. The estate is insolvent; the creditors must lose; how little can they be left to lose absolutely? how long can they wait for the partial payment which is all they can get? what allowance shall be made to the insolvent? what will be the expenses of collection and distribution? these are some of the questions which arise in the case of individual bankruptcy. These too, and others similarly analogous to those of private insolvency, were the questions which arose in the liquidation of Egypt, the first great case of a nation being placed in the Bankruptcy Court. All the points, of course, involved figures of an extent not occurring in ordinary commercial life; but the case was substantially the same, and only the scale larger. The insolvent was a Khedive; the estate a government; the assets a country. It can hardly fail to be both interesting and instructive to sketch the history of this great bankruptcy case.

To trace the progress of mis-government and mal-administration which led Egypt into insolvency would be of little profit. It is the peculiar misfortune of the despotically governed that their welfare depends almost entirely upon the individual character of the despot. If a dynasty of archangels could be established on the throne of England, even the English might be induced to part with their Constitution. But rulers are not archangels, or always even exemplary men; and the country which has no "constitution," no fairly balanced contract between governor and governed, is at the mercy of a man who may be, and sometimes is, benevolent and wise; but may also be, and frequently is, neither endowed with good intentions nor good judgment. In nations where there is a constitution, a bad ruler is neutralized by the balancing elements of government; in those which have none, the nation must suffer, till things become unbearable; the balance is then re-dressed and the rights of the governor asserted, by violent action; by revolution, deposition, and sometimes assassination. Before the crisis comes,

and while the point is yet somewhat distant where the worms begin to turn, there is a period of misery for the many, of luxury for the few ; of extravagance, oppression, and recklessness on one side ; of poverty, suffering, and rising indignation on the other. In ordinary course of history, the end is a revolution ; a struggle, followed perhaps by some amendment, perhaps by new rivets to despotic chains. In the case of Egypt there was this entirely novel element, that foreign nations took the case in hand, constituted themselves an international court of bankruptcy, and conducted the country quietly through a crisis which might otherwise have been attended with the horrors of civil war. That crisis ended, it is true, in deposition of a sovereign ; but it passed without the shedding of blood, or even the conscription of a battalion.

It was then, chiefly, the extravagance of the ex-Khedive which, the Government being a despotism, brought Egypt to the verge of ruin. There are spendthrifts in all classes ; and they are perhaps not more frequent amongst sovereign, or quasi-sovereign, rulers than in other circles. The spendthrift of middle-class life brings an old-established firm into bankruptcy ; the extravagance of a nobleman leads to the break-up of a fine estate ; a spendthrift despot brings a nation to ruin. The condition of Egypt, a few years ago, was this : To acquire the means of self-indulgence the Khedive had borrowed from European lenders enormous sums, in repeated transactions, at ruinous terms. To meet the obligations thus incurred, exhausting taxes were levied, at the will of the ruler, and without the consent of those who had to pay them ; these were pawned in advance, and collected in advance ; the farmers of land were impoverished, and either compelled to wring work from the labourer for next to nothing, or to give up as useless the attempt to cultivate ; the labourer himself had to toil for a wage barely sufficient to support life ; when he failed in bodily vigour, either from age or disease, he had to stand aside, and die. Multitudes led a life less enviable than that of an English cart-horse. If there was a "bad Nile," or from any other cause a failure in the natural produce of the country, the effects ran down the scale of society, pinching the farmer, reducing the labourer to emaciation, bringing to women and children actual death, either from starvation or the diseases which spring from famine and houselessness. Officials flourished in proportion as they were unscrupulous and grasping ; they were able to grasp, in proportion as they could divide the spoils

of grasping with the sovereign: thus the extravagance of the Khedive was sustained by the lives of his subjects. Multitudes perished that he might maintain an opera troupe; every loan he contracted killed its hecatombs. And so it must always be; though men are not always willing to recognise the truth, or careful to trace the misconduct of a ruler down to its ultimate effects.

In the end these effects recoil. Impoverished cultivators cannot go on cultivating, and so they cease to pay taxes; the revenue dwindles, till the sovereign no longer grinds sufficient out of the nation to satisfy the claims of his creditors: these then address themselves to what means they may have of enforcing their claims, and a state of things ensues which all the parties find intolerable. Fortunate, in reality, is the nation which, in such a case, finds itself too little independent, and too weak, to oppose the entry of the international bailiff, or resist a distraint of its goods and chattels. There are other nations which might benefit from such a process, besides Egypt; no other perhaps was in such a position that the representatives of its foreign creditors could, in a manner, enter upon its lands and distrain its goods.

What made this possible in Egypt was its own weakness as a nation, and its position of semi-attachment to another weak government. Turkey was not in a position to resent foreign interference in Egypt; Egypt was too feeble, and too little animated with national self-respect, to resent the interference herself. So much the better for Egypt.

The end of 1878 found the Egyptian Government in this position. The Khedive, driven into difficulties by his long course of extravagance, had admitted representatives of his foreign creditors into the administration; and these had been so admitted with the express official countenance of England and France. The management of the revenue had, to some extent, been acquired by them; and as the only means by which they could do anything effectual to mend matters, the Khedive had been reduced to relinquish some of his arbitrary power, and to have his means of decreeing and levying taxes curtailed. A species of constitutional government had been introduced, Ismail Pacha, the sovereign, having by a Rescript dated 28th August, 1878, pledged himself to govern henceforward with and by his council of ministers. Amongst his ministers were two English finance officials, Mr. Baring and Mr. Rivers Wilson; and upon these two Englishmen devolved the task of regenerating modern Egypt.

For it was a financial problem, almost entirely. It was the debt of the country which was bringing ruin and misery to the population, necessitating as it did the imposition of excessive taxation, and the application of the proceeds of taxes, not to the ordinary and normal purposes of administration, but to the payment of overwhelming interest, and the staving off of a monetary crisis with one set of creditors by creating another body of debt. The Rescript of the 28th August, 1878, and the admission of Europeans into the financial administration, were the results of pressure which foreign creditors had brought to bear upon the Khedive through the Governments of England and France; and had the ruler of Egypt been really willing to reform himself, and curtail his own extravagance for the good of his country, the new machinery, with European directors, would have sufficed to attain the desired end. Unfortunately, as the event proved, Ismail Pacha had no such intentions. Extravagant and selfish, ostentatiously hospitable at the expense of his unhappy subjects, and full of the spurious generosity which consists in freely dispensing other people's money, he was not the man to submit quietly to economies, or acquiesce in self-privation for the public good. Pressed by the European Powers whose subjects had lent him money, he made a show of financial and administrative reform, retaining in his heart the intention of shaking off the unwelcome restraint at the first opportunity.

All this was watched by the consuls of the two interested foreign powers, Mr. Vivian for England, M. Godeaux for France; and at the end of 1878, the date already quoted, their influence, and the effort at financial and administrative reforms, were represented in the actual administrative *personnel* of the country by a Cabinet having for its head Nubar Pacha. This gentleman was a travelled man, with European ideas, and was expected at that time to play a great part in the rehabilitation of his country under the inspiration of the English and French consuls, who, in their turn, were guided by the Foreign ministers of their respective governments in London and Paris. That Nubar Pacha did not in the end do much, will be seen: the fault perhaps did not lie with him.

Nubar Pacha formed a Cabinet, with the intention of bringing about a new *régime*, in November, 1878. At that time the Marquis of Salisbury was Foreign Minister in London, and his views upon Egyptian affairs were expressed, with a distinctness not usual in diplomacy, in a despatch to Mr. Vivian, dated at

the beginning of December. In this document Lord Salisbury notified the opinion of Her Majesty's Government that a very grave responsibility would rest with the Khedive for the success or the failure of the new *régime*, especially as regarded the collection of the taxes. Rumours had already reached London that, under cover of the interference of foreign Governments, attempts would be made "in high quarters" to throw off all responsibility. It was essential, Lord Salisbury said, to the successful working of the scheme for the government of Egypt, as devised by Nubar Pacha, that the taxes should be equitably apportioned and collected, as well as paid with punctuality and in full. By no other system could the Egyptian Government obtain the means to meet the claims of its creditors, and a failure on the part of those in whose hands had been placed the administration of the country to be guided by these principles must inevitably give a fatal blow to the reviving credit of Egypt and would cause a depreciation of all Egyptian securities. The English Government had full confidence in the resources of the country, and entertained no doubts as to the result of the new system, if it was only allowed to have a fair trial. But if it were opposed by those in power, or should they even show a disposition to throw discredit upon it, the responsibility for their failure "would involve its promoters in the disastrous consequences that must result." This was as strong a hint as is usual in diplomacy; but in order that there might be no mistake, Lord Salisbury went on to say :—

"Both the British and the French Governments earnestly desire to see the establishment of a stable Government and a sound Administration in Egypt, and they rely upon steady support being given on the part of His Highness the Khedive to the endeavours of Nubar Pacha and his Cabinet to re-establish the financial credit of the country. Such a result cannot but strengthen the position of His Highness and of his dynasty; but it should be borne in mind that their position may become seriously compromised should a contrary course be adopted."

That the removal of the Khedive was then in contemplation as a possible *dernier ressort* is easily to be read between the lines of the above extract. Mr. Vivian, our consul at Cairo, had just returned to Egypt from London; he acquainted Nubar Pacha, then, as already intimated, the Prime Minister of the Khedive, Mr. Rivers Wilson, the English administrator, and M. Godeaux, the French consul, with the drift of Lord Salisbury's despatch; and, they all concurring, he took an opportunity of using that severely admonitory language to the Khedive which his instructions from London warranted. The Khedive received the communication "with evident signs of

great annoyance," and told Mr. Vivian it was "one of the most serious and painful communications he had ever received from Her Majesty's Government"; which no doubt it was. Then, however, came the plea which Lord Salisbury had expected: the Khedive urged that he had parted with his absolute power at the suggestion of England and France, and that being so, that his ministers and not he must be responsible for the successful result of the new order of things. It was, if he rightly understood the first principle of constitutional government, the ministers, and not the Chief of the State, who were to be held responsible. It is possible that the Khedive really thought that, having admitted into Egypt something like a constitution, he would escape all further responsibility to the interfering Powers; but the misapprehension, if such it was, is palpable enough. A constitutional monarch shifts his responsibility to the people on to his ministers, but he must retain his responsibility to outside Powers for choosing and supporting such ministers as will carry out his international obligations. Mr. Vivian explained to the Khedive that what he had spoken of "was a moral responsibility for any action that might thwart the new ministry;" but does not seem to have removed the misapprehension; since, upon the French consul waiting upon the Khedive, and giving him, on the part of France, the same warning as had been given by Mr. Vivian as representing England, the Khedive repeated the plea that his ministers must be held responsible. The probability is, however, that the Khedive understood well enough the distinction of the two things; and sought only to play off a phrase upon his unwelcome advisers.

Meanwhile the state of the public treasury was fast getting worse. Two successive years of misfortune, arising from a low Nile, and inundations, had fallen upon a country already exhausted by over-taxation; and, to use the words of Mr. Vivian in one of his reports home to the Foreign Office at the beginning of 1879, "with an empty treasury chest and a ghastly amount of debt, heavy demands impending, a serious deficit on the year, and taxes coming in very slowly," the prospect was anything but hopeful. Nevertheless the Khedive was induced, early in January of that year, to issue a decree empowering the European Commission of Inquiry to prepare a code of fiscal and administrative laws for submission to the Council of Ministers, and if approved by them, to the Khedive; and enacting that from a date to be hereafter fixed no tax should be levied nor any

general administrative measure applied in Egypt unless sanctioned by a law presented by the Council of Ministers. This measure was a natural consequence of a report which had been made by the Commission of Inquiry, which after pointing out that most of the existing fiscal laws and regulations had never been published, and that new taxes had been imposed, old ones increased, and fiscal changes introduced, without any formal authority, recommended that no tax should in future be levied except in virtue of a law which must be officially published. This decree, entrusting the Commission of Inquiry with the task of propounding a complete code of fiscal and administrative laws—in other words a project for the financial and general regeneration of the country—was one of the first fruits of Nubar Pacha's administration; and, so far as appeared upon the face of things, Ismail Pacha was willing to assist in the requisite reforms and sacrifices.

While, however, thus consenting apparently to the initiation of reforms which must restrain his extravagances and his power, Ismail Pacha was undoubtedly doing all he could, less openly, to embarrass the new *régime*. He put forward a claim for 300,000*l*. as the value of cattle and agricultural implements on the lands he had surrendered in part reparation of what may be called, with truth, his plundering of the country; and upon being appealed to in regard to the prompt collection of the taxes, he professed that "it was no business of his, and he was not responsible for the entry of the revenue." Nor was this all. Signs of resentment began to be shown in some quarters against the interference of European officials, and these symptoms, there is no doubt, were due to the secret action of the Khedive. Mr. Vivian, in short, told him so. "I had occasion," he says, "to call the attention of the Khedive to the arrivals of deputations of sheiks from the provinces, and to the attitude of the Chamber of Delegates, as signs of a hostile agitation against the new administration, to which I had been led to believe he was not a stranger, and I reminded His Highness of the official warning I had been instructed to give him."

The warning had no effect; in less than a month occurred an overt manifestation which, there can be comparatively little doubt, was prompted by the Khedive. It was but a puny affair, but it showed what agency was in operation to undo the work of the European efforts at rehabilitation. In conse-

quence of the reductions in the army which had recently been made on a large scale, and by which about 2,500 officers were put on half-pay without receiving heavy arrears due to them, a military riot broke out in Cairo, directed against the Government, but more especially against Nubar Pacha and the English administrator, Mr. Rivers Wilson. These two ministers were stopped by about 400 armed officers, and, with very rough treatment, forced into the Ministry of Finance, of which the rioters took complete possession. The Khedive, informed of what was going on, personally ordered the rioters to disperse, and on their refusing to do so, directed the troops to act, the result being that four or five persons were wounded. The affair was soon over, and was never particularly serious; but it enabled Ismail Pacha to quote the presumed danger of pursuing further the reforms which involved European interference, and to state his determination no longer to retain Nubar Pacha as premier. Nubar was dismissed; the consuls of England and France not seeing their way to insist upon his retention. The Khedive thus scored one point; he got rid of the Egyptian ally of the European supervisors. His further proceedings showed much cunning. In putting down, or pretending to put down, the riot just spoken of, some of the mutineers had been arrested; it was desirable not to punish them, and an excuse must be found for so acting. The riot was got up by about 400 or 500 officers who were then in Cairo, and the ringleaders arrested and imprisoned were of this class. Order was thus apparently restored, but, by what appeared an act of folly, but was really a piece of calculating cunning, the Minister of War summoned the remaining 2,000 officers up to Cairo from various parts of the country to receive a portion of their arrears of pay and to deposit their arms with the authorities: he thus gathered together a seething mass of 2,500 discontented officers, the garrison of Cairo consisting of troops, a great proportion of whom had undoubted sympathy with the grievances of the mutineers. The officers at once demanded the pardon and release of their imprisoned comrades, who, they said, were not more culpable than they were. This was the situation desired by the Khedive, who, having sent for the French and English consuls, told them that under the circumstances he was obliged to temporize with the mutineers, and could not deal with them as they deserved. The English consul, Mr. Vivian, warned him that this would be "a deplorable exhibition of weakness on the part of the governing

power which could not fail to attract serious attention in Europe," to which the Khedive replied that the fault lay entirely with those who had brought matters to such a pass, and had sapped and undermined his authority. The result was that the ringleaders of the sham riot were released. Well might Mr. Vivian observe, as he does in a despatch to the Foreign Office about this time,—"The Khedive's enemies say that he is certainly implicated in the whole plot, and that this is the real secret of his leniency to the mutineers. If this be true he has indeed played a most dangerous card, which is not unlikely to cost him his throne."

Thus was Nubar Pacha got rid of after about a five months' holding of the position of Prime Minister, and Ismail Pasha regained a position of comparative freedom from control. He proposed, at this point, certain modifications in his own position which would have amounted to the restoration of some of the absolute power he had parted with by the Rescript of the 28th of August, 1878; but the Governments of France and England, acquainted by their consuls with the real history of the *émeute*, stepped forward, and expressing their decided objection to any such change, urged also the readmission of Nubar Pacha into the Cabinet. To this the Khedive replied by saying that, if the readmission of Nubar Pacha was insisted on, the Powers "must not blame him (the Khedive) if the new order of things should break down, or if disturbances should again arise." Here again Ismail won the point: the reacceptance of Nubar Pacha could not, under these circumstances, be further pressed; and the upshot was a new ministry, of which Prince Tewfik, the Khedive's son, was president. The two European members, Mr. Rivers Wilson, and M. de Blignières, remained in their positions; and it was now stipulated by the two Powers, and agreed to by the Khedive, that they should have an absolute veto on any measure of which they both disapproved.

Lord Salisbury, apprised at home of all this by the despatches from Cairo of Mr. Vivian, seems to have seen, from this little *coup d'état* of Ismail Pacha, what was the real intention of that crafty ruler. In the middle of March, 1879, he telegraphed to Mr. Vivian to return to England by the earliest opportunity, to confer with him on the state of affairs in Egypt. At the same time Mr. Frank C. Lascelles, who had had previous experience in the country, was sent to Cairo to take up the consular duties.

The Khedive continued his course of secret plotting to regain

his uncontrolled position. On the 1st April, 1879, Mr. Lascelles was told by two of the Egyptian Ministers that Riaz Pacha, one of them, had been denounced in the mosques as a friend of the Europeans, and had been declared to have forfeited all claims to be regarded as a Moslem. He had also been warned by the Prefect of Police that his life was in danger. A meeting was to be held at the house of the Sheikh El Bakri, and it was believed that it was intended to rouse a religious feeling against the European Ministers, and the Christians generally. Immediately on the receipt of this information, Mr. Lascelles requested Mr. Borg, the Acting British Vice-Consul, whose long residence in the country had placed him in a peculiarly favourable situation for obtaining intelligence, to make inquiries as to the real object of certain meetings that were being held. Later in the day Mr. Borg communicated the result of the inquiries he had made. It appeared that there was no doubt about the meetings having been held, and that there was constant communication between the Khedive and the more influential persons who attended them. Their object was to obtain support to a financial plan which the Khedive was preparing in opposition to that of Mr. Wilson. It thus appeared that, although he had, by a decree above alluded to, entrusted the European supervisors with the task of drawing up a plan for reorganization of the finances, Ismail Pacha was secretly preparing a counter-project and fostering a factious agitation in favour of his own scheme. This was duly reported by Mr. Lascelles to the Marquis of Salisbury at home, and discussed, no doubt, by the Marquis with Mr. Vivian, who had now arrived in London. In a few days, the foreign representatives at Cairo were openly informed by the Khedive that he was about to submit to them, for transmission to their Governments, a financial plan which, he said, "represented the true wishes of the people." Hereupon Mr. Rivers Wilson and M. de Blignières, the English and French members of the Cabinet, went to the Khedive and presented a written protest, in which they pointed out the difference between his action and the assurances he had repeatedly given to govern "with and by his Council of Ministers." They dwelt on the encouragement which he had given, without consulting his Ministers, to certain persons who, in supporting a financial plan which had been drawn up without the knowledge of his Ministers, were demanding a change of the present Constitution; and they denounced this attitude as

being altogether inconsistent with His Highness's repeated assurances that he would give to his Cabinet his complete and loyal support. This, however, had no effect. That same afternoon the foreign Agents were convoked by the Khedive, and informed that, "owing to the great discontent that existed among all classes of the population," he had thought it necessary to take a radical step, and he, therefore, begged them to forward to their respective Governments a project which had been submitted to him, as representing the wishes of the whole country, and which stated that Egypt was not in a state of bankruptcy, and demanded a change of existing arrangements, with the formation of a native Ministry. The Viceroy further stated that Prince Tewfik had tendered his resignation, and that he had appointed Chérif Pacha President of the Council of Ministers, in his place.

Here was another *coup.* The plan in question had been kept entirely secret from Prince Tewfik and the rest of the Ministry; and a new premier, Chérif Pacha, was suddenly brought to the front in Prince Tewfik's place. To a question put by the Italian representative at this meeting, whether the plan of the Khedive was submitted for discussion or had already been adopted, the Khedive answered, at once, "C'est une mesure à executer." "It is to be carried out." Not only, moreover, was Chérif Pacha substituted for Prince Tewfik, but two men, Shaheen Pacha and Omar Loutfi Pacha, were nominated Ministers, who, as Inspectors-General of Upper and Lower Egypt, had in former years been notorious for extorting taxes from the population by cruelty. More than this, the two European Ministers, Mr. Rivers Wilson and M. de Blignières, were set aside by the appointment of two Egyptians to their posts, the Khedive merely notifying to the European gentlemen that he "had entrusted Chérif Pacha with the formation of a new Ministry, to be composed exclusively of Egyptians." Giving an account of the meeting of the foreign representatives at which the Khedive communicated these steps to them, Mr. Lascelles says :—

"The Khedive's declaration was listened to in complete silence, which continued for some time after he had finished speaking. On taking leave of the Khedive, I observed that the communication which His Highness had made was of such excessive gravity that I could offer no opinion upon it before receiving your Lordship's instructions, and that I would at once communicate with you by telegraph. On leaving the Palace I drove with M. Godeaux to his house, and then went in search of Mr. Wilson and M. de Blignières, whom I met returning from a Council of Ministers, at which Prince Tewfik had given in his resignation, on the ground that ever since he had been President of the Council he had been kept completely in the background, and had not even been consulted in important matters by the other Ministers, and that he could no longer occupy so secondary a position. M. Godeaux and I informed

Mr. Wilson and M. de Blignières of what had taken place at the Palace, and we consulted for some time as to the line they should adopt. It was evident, however, that what had just taken place was in fact a *coup d'état*, and that the Khedive had, at all events for the moment, regained his personal power."

The Commission of Inquiry, consisting of Messrs. Rivers Wilson and E. Baring, for England, MM. de Blignières and B. de Bughas for France, Signor Baravelli for Italy, and M. de Kremer for Germany, had by this time prepared an elaborate and thorough report on the financial condition of Egypt, and the laws necessary for a provisional reorganization of the public debt: finding themselves thus set aside by the sudden disclosure of a counter-project of the Khedive, they resigned in a body. Copies of the Report of the Commission of Inquiry were posted at Cairo on the 15th April, 1879, addressed to ministers, public functionaries, and the principal persons interested in Europe, but were stopped by the new Ministry, or by Ismail Pacha, at Alexandria. At the same time the Khedive began to fortify himself by increasing the army; and a new oath was tendered to the superior officers, binding them "to bear true allegiance to the Khedive, and to resist all the enemies of the country, of himself, and of his family."

The result of these reactionary, selfish, and wicked measures on the part of Ismail Pacha was soon evident. At the end of April—the change of Ministry having taken place only a few weeks—the population were once more plunged into misery by the severity with which money was being collected by the agents of the Government. A short extract from a letter printed in the official papers communicated to the Foreign Office will present the picture. The writer says:—

"You ask how is the new *régime* working? Worse than before. Three-fourths of the taxes and imposts, and one-half of the Moukabala are now exacted by means of the usual oppressions. Nay, it tells more at present, as the fellah, having no crop of cotton or grain to realize, is obliged to have recourse to usurers for money, which he gets at some 4 or 5 per cent. per month. The Moudîr is in the neighbourhood of Abou Kebir to flagellate the poor fellaheen. Encouraged by his reappointment to the post, from which he had been dismissed by Mr. Wilson, he is doing his best to collect 60,000*l.* in lieu of 50,000*l.* I leave you to imagine how barbarously the whip is applied there and in several other places. . . . The fellaheen are running about the streets like madmen, and to any European they meet they ask for money at any rate of interest. The officers themselves are annoyed and in despair at having to use all stringency in collecting money, and there is none to be had."

Shortly after these events, Mr. Vivian returned to Cairo, from his visit to England, bringing with him Lord Salisbury's instructions to express the serious concern of the English and French Governments at what had occurred, and to press for the re-admission of the European Ministers into the Egyptian Cabinet. This the Khedive firmly declined, and on the 6th May, 1879,

Mr. Rivers Wilson, the English member of the dismissed Cabinet, left Egypt for England.

For a time, now, matters in Egypt followed the will of Ismail Pacha. Some idea of the condition to which the country was consequently reduced may be obtained from the reports made by the consular agents of our Government on the subject, in obedience to instructions from home. These accounts are dated during the last few months of the vice-royalty of Ismail Pacha. One of the reports, from three provinces of Lower Egypt, states that "the whip and bastinado are the necessary concomitants of every demand for the payment of taxes." The fellaheen were driven to borrow money at rates varying from 3 to 13 per cent. per month, that is to say, 36 to 156 per cent. per annum! Besides the whip and the bastinado, imprisonment was resorted to, to extort payment in advance. Vast numbers of Europeans had become possessed of estates, through their owners having to mortgage them to obtain money at exorbitant rates, to pay the taxes, and then being quite unable to redeem the lands. In this way the misgovernment of the ruler was actually alienating the soil from the rightful inhabitants, and placing it in the hands of foreigners. In the management of works of irrigation, and such like, there was gross favour and corruption; and in recruiting, or rather conscribing, bribery to procure exemption was largely prevalent. Officials, and rich persons arrested the water of the common water-courses for their own exclusive benefit, leaving the fields of the poor unfertilized; bridges were constructed, by forced labour, in the interest of the rich alone; the general survey, which had been begun under European influence and direction, had been stopped.

In Upper Egypt, the reports stated, "the poor were being treated with rigour, and even cruelty;" standing crops were sold in advance to pay the Government claims upon them; money was borrowed at ruinous rates; taxes extorted by imprisonment and the bastinado. The principal local offices were sold to the highest bidder; and the report from this district actually gives the ruling prices of Government appointments, ranging from 100*l.* for a district tax-collectorship, to 1,000*l.* for the post of Moudir. In telling off men for forced labour, and in recruiting, there was everywhere corrupt favouritism; and the private estates of the Khedive got an unfair benefit from the irrigation at the expense of the neighbouring lands.

The report from Zagazig speaks of men being placed in irons day and night to extort taxes in advance; weighed down by exorbitant interest, cultivators had to sell lands, cattle, and all their goods, reducing themselves to the greatest distress. Standing crops had to be parted with at 75 per cent. under market value.

In another district it was reported that comparatively few persons were imprisoned for failing to pay taxes; "the use of the whip being found more effective." In addition to all this, one of the last acts of Ismail Pacha was to "invite" the local authorities to obtain what they could collect from their several villages "to help their Ruler out of his present difficulties!"

Nor were the fellaheen, or labourers, the only class reduced to misery. Many of the middle class have been victims of Ismail Pacha's extravagance and improvidence. With as entire a disregard of the future as of the present welfare of the country, the Khedive had obtained money from numbers of the better class of country proprietors by borrowing of them the amount of several years' taxes in advance, on condition, or promise, that their lands should then be released from certain taxes in perpetuity. That Ismail ever intended so to release the lands, unless he at the same time put on other compensating taxes with a different name, is not likely: but under an Eastern and despotic rule a subject cannot well resist his sovereign, even when the will of the latter is in effect to plunder; and large numbers of landowners were thus induced to advance money. Some of these had regular acknowledgments for their loans; some had not. It is believed that some 16,000,000*l.* of debt was thus contracted; though from the utter want of regular account not much more than half that amount could probably have been proved against the Government. In this manner arose what was named the Moukabaleh loan.

That this condition of things could not go on long without bringing Egypt to a still worse condition, and destroying all chance of the foreign creditors being paid, was evident. What has been related in the first part of this article shows, moreover, plainly enough, that to any regeneration of the finance of the country the Khedive was the principal obstacle. An ingrained prodigal, he was also a consummate intriguer; the facts already narrated will have shown that he possessed no little talent in the last-named character.

Had Ismail Pacha been an independent sovereign, nothing

further could have been done; nothing, that is to say, unless the two countries, whose subjects were chiefly interested as creditors, had chosen to go the length of making actual distraint of territory, which would have been an act of war. There might be a worse *casus belli;* and have been many worse; but it is probable that France and England would, in the last resort, have shrunk from landing troops in Egypt to enforce payment of her national debt, however wholesome such a process might be deemed by international philosophers.

There was, in this case, another method possible. The Khedive was but a viceroy, though one who had done much, and aimed at doing more, to render himself independent. The Sultan of Turkey was his sovereign, and from the Sultan it was that Ismail Pacha held Egypt. The two Powers therefore addressed themselves to Constantinople. Reading the official papers connected with the subject it is impossible not to perceive that the deposition of Ismail Pacha by an act of the sovereign power at Constantinople had long been looked forward to as a last resort by England and France, acting in the interest of the creditors. Nor could Ismail hope to resist, if once his deposition were decreed by the Sultan. Rebellion against his sovereign would have brought upon him, without doubt, the occupation of his territory by England and France in the name of Turkey.

In what way the two Powers induced the Sultan to act in the matter is not precisely known. It is probable, however, that the Sultan had no great reason for befriending his vicegerent, whose aims included the attainment of as much independence of Constantinople as could be gained by constant intrigue. Moreover a large tribute was at stake; for this, it was certain, could not long continue to be paid if the ruinous extravagances of the viceroy were permitted to go on. Suffice it to say that Turkey, though hardly less in fault as to mismanagement and wastefulness than her dependency, was willing to assist in the process of compelling Egypt to pay her creditors, even to the extent of deposing the ruler of the land. A few days before the end of June, 1879, Ismail Pacha was informed by telegraph from Constantinople as follows:—

"The difficulties which have occurred for some time past in the interior and exterior affairs of Egypt have assumed considerable gravity: and the continuance of this state of things would have consequences dangerous not only to that country but

to the Ottoman Empire. It is proved that your continuance at the post of Khedive can have no other result than to multiply and aggravate the present difficulties. His Imperial Majesty the Sultan, in accordance with the decision of his council, has accordingly decided to nominate to the post of Khedive His Excellency Mehemet Tewfik Pacha, and you are hereby invited to withdraw from the government."

Mehemet Tewfik Pacha, thus substituted, is the son of Ismail: in a few days the son was installed in the government of Egypt, and the father, with a large harem of women, and doubtless with a considerable amount of ill-got treasure, had left the country. Thus the field was cleared; and, the good intention of the new Khedive, Tewfik, having been well ascertained, the real work of beneficent liquidation began.

The figures with which the liquidators had to deal, put roundly, were about these. Total debt of the country 80,000,000*l.*; revenue 8,500,000*l.* a-year; expenses of government 4,500,000*l.* a-year; available surplus of income over expenditure, omitting payment of interest on debt, 4,000,000*l.* This would give the means of paying 5 per cent. interest on the debt; if no attempt were made to extinguish a portion. But a large proportion, something like three-fifths of the debt, had been contracted at 7 per cent.; and, what was worse, the recognised and inscribed debt did not include by any means all the indebtedness. There was the Moukabaleh loan, already described; and there were other similar obligations, more or less irregular, but morally binding.

The process of liquidation, however, was at once set in motion. In a week or two after the appointment of Tewfik Pacha to be Khedive the two European Controllers-General, Major Baring for England and M. de Blignières for France, who had formerly held a similar office, were reappointed; and these addressed themselves to ascertain the real revenue, and the exact indebtedness of the country.

But these two gentlemen represented only two countries; and there were other Powers interested. Accordingly we find that so soon as the second week in July, 1879, the Austrian Government, unwilling, apparently, that England and France should have a monopoly of the proceedings in bankruptcy, proposed the appointment of a Commission of Liquidation, in addition to the two Controllers-General. Lord Salisbury agreed to this, with an expression of opinion, however, that as Russia had

no interest in Egypt, there should be no Russian representative on the Commission.

Meantime the new Khedive recast his Cabinet. In a letter by which he requested Chérif Pacha to do this, Mehemed Tewfik said that in confiding to him the destinies of his country, Providence had imposed upon him duties which he intended to fulfil with honour and loyalty. The task was difficult; he felt the weight of responsibility which lay upon him in the midst of the complications of a financial crisis, which, paralysing as it did all commercial energy, and creating a general low condition of the national health, was a source of widespread anxiety. It was his wish to see his country out of this unhappy situation; and to this object he would devote all his efforts. Reasonable deductions in expenditure, probity in the administration, opportune reforms in the judiciary,—these were the first necessary remedies; he counted upon Chérif to second him in bringing these about. The Cabinet was reformed by Chérif, and our acting Consul, Mr. Lascelles, sent word home that the selections made might be regarded as a proof of the intention of the Khedive to surround himself with honest advisers.

The new Minister of Finance at once put into action a European method of book-keeping; a general cadastral survey was decreed in order to arrive at an equitable assessment of taxation; and the Prime Minister, Chérif Pacha, expressed to the English and French Consuls his willingness to accept to the Commission of Liquidation suggested by Austria, and consented to by Lord Salisbury. There were, however, prolonged negotiations between the European Powers in reference to the constitution of this Commission, and its scope. Italy, as well as Austria, had differences with France and England on some points connected with the matter. In the end it was constituted as a body of seven; two English, two French, one Austrian, one German, and one Italian. One of the English members, Sir Rivers Wilson, was President. The two Controllers-General, Major Baring and M. de Blignières retained their posts and their functions; so that the machinery of liquidation consisted of two officials who might be termed Receivers in Bankruptcy, and seven who might be termed Commissioners for distributing the assets amongst the creditors. The former represented the interests of England and France; the latter and larger body included a representative of all the powers entitled to a voice in the matter.

There was, not unnaturally, some rivalry between the two sets of Commissioners. The Controllers-General put forward, at first, their own scheme for the entire operation of reorganising the Egyptian finances; but this was set aside by the opposition of Austria. Next the Controllers, acting so far with the Egyptian Government, wished to ignore the Moukabaleh claims, already described, in which the claimants were not foreigners, but nearly all Egyptian subjects: this was over-ruled, as equity doubtless required. Thirdly, the Controllers-General and the Egyptian Government put forward the normal revenue as 8,000,000*l.* a year, though it had been usually stated, in the time of Ismail, at 12,000,000*l.*; and battled for unfettered use of any possible surplus: on this point a compromise was arrived at, the revenue being taken as 8,500,000*l.*, and provision made that a small portion of any future surplus should be applied to the extinction of debt.

On the basis thus attained by compromise, the Commission of Liquidation proceeded under the presidentship of Sir Rivers Wilson; and in a short time elaborated a scheme for dealing with all the various classes of public creditors of Egypt. To detail the particulars and set forth the figures of this settlement would be of little interest: sufficient to say that the composition recommended and effected has been accepted without serious complaint by the various classes of creditors, and the country in the autumn of 1880, might be truly said to be on the road to monetary rehabilitation.

This condition of things has not been attained without some faltering. At one time, and that not long after Tewfik Pacha took the place of his father, a return to personal absolute power seemed imminent. Chérif Pacha, the premier, proposed a constitution; the new Khedive rejected it as unfit for the existing condition of Egypt, and Chérif resigned. Of the Cabinet which succeeded to power Riaz Pacha was the chief, and under his guidance, matters proceeded satisfactorily. In his letter to Riaz Pacha, appointing him premier, the Khedive recited that he was aware that Riaz shared his views with regard to the necessity of introducing honesty, progress, order, and economy into the administration of the country; and mentioned as immediate requisites a regular annual budget of receipts and expenditure, a definite organisation for the collection of the revenue, and the settlement of the financial situation.

The general result of the measures of which I have sketched

the progress was described towards the latter part of last year (1879) as very satisfactory; and it is greatly to be hoped that nothing may happen to derange the system so carefully set in working. A competent correspondent, writing from Alexandria at the end of last August, says the liquidation was proceeding regularly and rapidly, and money was on all sides abundant. Of the floating debt nearly two millions sterling had been settled since the promulgation of the law to that end on the 17th July: one-third of this had been paid in cash, the remaining two-thirds in scrip of the Privileged Loan at par. There was no reason, it was considered, why the Rothschild State Domain Loan, and the Railway or Privileged Loan, should not be at par. The writer adds:—"Twelve months since, the idea of any Egyptian security being worth par would have been considered a wild dream; but we have finished with the Egypt of Ismail Pacha, and are now under the rule of a Khedive who knows what England and France have done and can do again. The Khedive and his Ministers are carrying out fiscal and social reforms with an energy which is good evidence of their sincerity. The Khedive is very popular with the Alexandrians, who saw little of his father. The son takes great interest in all that is going on ashore and afloat. His dinners and entertainments at the Palace are frequent but modest. There is very little display and no extravagance."

The success of this great liquidation case suggests the question whether similar proceedings might not be applied with advantage to some other defaulting States. There is, perhaps, little prospect of such an occurrence. Other States might be named where similar interference would be equally justifiable, and equally salutary; but it is doubtful whether, in any other case, it would be equally practicable. Perhaps, too, an international combination to bring defaulting States under compulsory liquidation might have its disadvantages, in rendering it easier for unprincipled communities to obtain money from lenders, who would rely upon compulsory payment of at least a proportion of the liabilities incurred. On the whole it is not a precedent likely to be much followed. But it is not on that account, the less interesting.

JOHN CROWDY.

PROPOSED SHIP CANAL AT PANAMA.

THERE is perhaps scarcely a more tantalising bit of dry land in the world than that which is popularly known as the *Isthmus of Panama*. Connecting as if by a wavy riband North America with South, and separating the great Atlantic from the still greater Pacific, it tempts one to exclaim "Oh for a ship canal across this neck of land!" To the Pacific, to the whole western coast of America, to China and Japan, to India and Australia—to all of these such a canal would save an immense distance compared with the tedious voyage round Cape Horn.

The fine old navigator Christopher Columbus was the first to discover the real nature of this isthmus. He conceived that a voyage due west from Europe would carry a ship right on to Inde and Cathay, the renowned India and China, without any interruption from land; he little dreamed what stood in the way. After surmounting a multitude of annoying obstacles, he obtained the patronage of Ferdinand and Isabella of Spain. In 1492 he set forth in command of three small sailing vessels, two open and one decked, and a hundred and twenty men. He discovered Cuba, Hayti, and other islands, gave to Hayti the name of Hispaniola or New Spain, took formal possession for Ferdinand and Isabella, and assumed the sonorous title of "High Admiral and Governor-General" over all the lands he might discover. Returning to Spain, he was received with great honour both by the joint sovereigns and by the Spanish people. In 1493 he sailed forth again, and discovered Jamaica and the Caribbee Islands. But while he was away jealousy and envy had been working against him; he was obliged to return and clear himself from cruelly unjust charges. A third expedition was planned in 1498, and Columbus set forth again. After discovering Trinidad he visited Hayti, which he found in the utmost confusion; a new Governor, Bovadilla, not only disowned the authority of Columbus, but sent him back to Spain in chains. The heroic man could obtain but little redress for the insults and injuries which calumny had brought upon him. Once again he set forth, with four vessels and a hundred and twenty men, in 1502. He sought diligently for any strait or water passage across the isthmus, but sought in vain.

Ferdinand Cortez took up the subject of the Isthmus of Panama some years afterwards. He was sent, in 1518, by

Velasquez, Governor of Cuba, to conquer and take possession of Mexico, the gold and silver of which had excited the cupidity of the Spaniards. With a very small force, but with consummate skill and daring, he effected this, deposed Montezuma the native king, and took possession of the whole of the large country for Spain. Charles the Fifth, at that time King of Spain "and the Indies," nominated Cortez as Governor and Captain-General of this fine possession; but intrigue and calumny pursued him as they had done Columbus, and he died in cold neglect.

Francisco Pizarro, another of the remarkable men of that period, went to the newly-discovered world beyond the Atlantic to seek his fortune. Falling in there with one Balboa, the two landed on the isthmus, crossed over, and gazed with wonderment on what met their view towards the west. Balboa rushed breast-high into the waters of the Pacific, and took possession of the mighty ocean in the name of his sovereign the King of Spain—another instance of the grandiose magniloquence of the Spaniards in those days. Pizarro then joined two or three other adventurers, sailed down the Pacific coast, discovered Peru in 1526, and brought back to Spain unmistakable proofs of the rich mineral treasures of the land of the Incas. Charles the Fifth at once dubbed him Governor and Captain-General of the newly-discovered Peru. Pizarro was soon sent out again, to conquer and take possession of the land of gold mines; this he effected with a marvellously small military force. Pizarro was indisputably a man of great courage, inflexible firmness of purpose, and infinite resources, but selfish and relentless; his treatment of the Inca Atahualpa was treacherous and cruel.

The country laid open to the knowledge of Europe by the notable men we have named, so far as it comes under the designation of Central America, comprises all the region from the south extremity of North America to the north extremity of South America. It is an irregular strip of land about 700 miles long in a straight line, but very much more in its serpentine sinuosities. Its narrowest part, near Panama, is only 27 miles in width—a tempting bit in the eyes of canal projectors. The whole region includes, politically, the south of Mexico, Yucatan, the Republic of Honduras and Bay of Islands, Belize or British Honduras, the Native Kingdom of Mosquito, the Republics of Guatemala, Nicaragua, San Salvador, Costa Rica, and New Granada, with its provinces of Panama and Veraquas.

Canal projectors have directed their attention to different

parts of the region in turn. Balboa crossed it at Panama only ten years after the planting of the Spanish flag in the New World by Columbus ; Cortez crossed it much further north, at Tehuantepec. After his death the Spanish Government were too jealous to let other countries share in the commercial and political advantages of the new discoveries, and did not encourage any canal schemes. Towards the close of the century Padré d'Acosta threw a further damper on such projects, by taking a theological view of the matter. "I am of opinion that no human hands would be sufficient to cut through the strong and impenetrable barrier which God has put between the two oceans ; and, if ever possible, the vengeance of Heaven may be expected for attempting to improve the works which the Creator, in his Almighty Will, has ordered from the beginning."

Nothing was done in the next two hundred years that need be noticed here. In 1788 another Spanish priest, ignoring the dogma of Padré d'Acosta, achieved the very thing on a humble scale. As priest of Darien, he induced his native converts to make a water communication from ocean to ocean, by a trench or shallow canal from the river Atrato to the river Nipipi. He paddled through from the Atlantic to the Pacific, in the rainy season, in a canoe. The new cut was only three or four miles long, the rest of the distance being by the two rivers. Captain Pim saw the ruins of this tiny bit of a canal in recent times.

In 1814 the Spanish Cortes authorised the construction of a canal at Tehuantepec in southern Mexico ; but the scheme does not appear to have gone further than this vote. In 1830 a company was formed in Holland for making a canal at Nicaragua ; here, again, the matter fell to the ground, on account of political and other troubles. In 1835 a similar project was brought under the notice of the United States Government, and a decision of the Senate obtained on it. An agent, sent by President Jackson to negotiate with the authorities of Nicaragua, died on the road, and so—the old story—nothing came of it. In 1837–8 Lieutenant Bailey, of the Marines, under the authority of the Government of Nicaragua, surveyed that State accurately from ocean to ocean. He describes Lake Nicaragua as a noble piece of water, nearly a hundred miles long by half as much in width, and in some parts fifteen fathoms or ninety feet deep, with many rivers flowing into it and feeding it. From the western end of the lake to the Pacific is only a small distance, terminating in the port of San Juan del Sûr ; from the eastern end to the

Atlantic is a much greater distance, calling for heavier engineering works, and having an inferior terminal port.

In 1842, when Mexico had shaken off the Spanish yoke and become an independent republic, President Santa Anna granted to Don José de Garay the exclusive privilege of using steam locomotion on a canal at Tehuantepec, provided he could get somebody to supply the pecuniary means. Garay worked energetically, but he found that the canal would be of such great length, the ports at the two termini so unsuitable, and the interior of the country in so distracted a state, that his cherished privilege proved to be of no value to him nor to anyone else. The scheme was abandoned, as so many others had been.

And now we come to the year 1847, when one of the most remarkable men in Europe took up this (to so many minds) fascinating subject of cutting a canal across the famous isthmus. Some few years previously, while a prisoner in the fortress of Ham for his political escapades, Prince Louis Napoleon had dreamed out a scheme quite characteristic of him. It was made known to him that the Nicaragua Government would be glad if he would take in hand some plan for a canal through that State. While in exile afterwards in London he publicly advocated the question before the Institution of Civil Engineers.

His scheme deserves notice, for many striking features it possesses. "There exists in the New World," he tells us, "a State as admirably situated as Constantinople, and, we may add, up to the present time as uselessly occupied. We allude to the State of Nicaragua. If the tongue of land which separates its lakes from the Pacific Ocean were cut through, she would command, by her central position, the entire coast of North and South America. Masaya, in its centre, is nearly midway between two extensive natural harbours, capable of affording shelter to the largest fleets safe from attack. The State of Nicaragua is for the United States the shortest road to China and India, and for England and the rest of Europe to Australia, Polynesia, and the whole of the western coast of America." The Prince paints a picture in bright colours of the harmony of nations in regard to this matter; France, England, Holland, Russia, and the United States have a great commercial interest in the establishment of a communication between the two oceans; but England has more than the others a political interest in the execution of this project. England, it is enthusiastically urged, will see with pleasure Central America becoming a powerful and

flourishing State, which will establish a balance of power by erecting a new centre of enterprise and checking any further advance south by the United States. She will therefore warmly welcome the opening of a route which will enable her to communicate more speedily with her possessions on the two sides of the Pacific, and will find that the advancement of Central America will renovate the declining commerce of Jamaica and her other West India Islands.

The financial parts of his scheme are peculiarly characteristic of a man who down to a certain period in his life had a tendency to dreamy speculation without much basis in practical experience. The Nicaragua Government, he assures us, would gladly give to a company two strips of land, each six miles in breadth, extending along the two banks of the intended canal from end to end. Deducting improvements, waste, and land needed by the company, the remaining total would be about 700,000 acres, which, at 1*l.* per acre, would be worth 700,000*l.* Still more peculiar is his idea of combining colonisation with canalisation, the planting of a colony and the making of a canal. Every shareholder in the company is to have a certain portion of the 700,000 acres given or leased to him, on such terms that in twelve years the shareholders and the company would be alike recouped. Roughly estimating the cost of the canal at 4,000,000*l.*, he supposes this capital to be raised by 400,000 shares of 10*l.* each.

It does not appear that the Prince visited Central America to examine the proposed route for himself; attracted by the dreamy splendour of the scheme, he made light of the physical and engineering difficulties. The shareholders would be emigrants, intending to become settlers; they would pay the purchase price by small easy instalments, the company providing them with dwellings, food, and other necessaries. The annual instalments of payment would be almost nominal at first, increasing as the resources of the ground became developed. The company would form villages in various parts along the line, always on the banks of some river or stream, each village to contain two hundred dwellings for one family each, with church, school, and store. As the emigrant-colonists will be the shareholders themselves, they will ultimately take the profits that accrue to the company. In ten or a dozen years, after paying everything due to everybody, the fortunate settlers will be in the receipt of 10 per cent. on the capital they have expended. He treats in glowing terms of the benefits in store for those who belong to and consti-

tute the company. "At present, when an emigrant goes to America, he finds no dwelling, no advance of capital, and often no employment; whereas by our plan, by taking a share he is sure to find on his arrival a wholesome dwelling, sustenance for six months, fertile land, and a community already settled. Moreover, a part of the money paid for the purchase of his land would come back to him as a shareholder, and in about ten years his property would not only be freed from all burdens, but he might fairly expect that both his share in the canal and his land would be doubled in value. Thus our project protects all interests. The neglected country would speedily change to flourishing towns, its lakes covered with vessels, and its wealth increased."

This enthusiastic language reminds one of the circulars sent by a stockbroker to his clients, pointing out the splendid returns to be obtained by those who invest in some new joint stock company;—"War and commerce have civilised the world. The time for war is gone by (!) Commerce also pushes her conquests. Let us then open to it a new channel. Let us approximate the people of Oceania and Australia to Europe, and let us make them partakers of the blessings of Christianity and civilisation. To accomplish this great achievement, we make an appeal to all religious and intelligent men, seeing that it is worthy of their zeal and sympathy; we invoke the assistance of all statesmen, because every section is interested in the establishment of new and easy communication between the eastern and western parts of the globe. Finally, we call upon capitalists, because, while promoting a glorious undertaking, they are sure to derive a large profit thereby."

When Prince Louis Napoleon became Emperor Napoleon III his thoughts were too much occupied with other matters to attend to the canalisation and colonisation of Central America.

In 1854 an American gentleman, Mr. Kelley, entered warmly into the Atrato scheme for a canal in the Panama region, and spent a large sum of money in surveys and explorations. His researches led him to suggest a route from the Bay of Candelaria up the River Atrato to its junction with the Truando, then to follow the last-named river to Kelley's Inlet, the total length being about a hundred and thirty miles; the canal to have a minimum width throughout of two hundred feet, and depth of thirty feet. Mr. Kelley's researches have been useful to later projectors.

While other persons were thus attending to the physical and

engineering features of Central America, Admiral Maury was carefully observing from time to time the winds, tides, currents, calms, and hurricanes in the two oceans, important to easy ingress and egress at the several harbours and ports. As quite a leading authority on hydrographical questions, his remarks possess much value. In a letter to Captain Bedford Pim, dated 1866, the Admiral adduced his reasons for thinking that the region at and near Panama is unsuitable for the *locale* of a canal. "Even if Nature by one of her convulsions could rend the centre of America in twain, and make a channel across the Isthmus of Panama, it would never become a commercial thoroughfare for sailing vessels." It appears that the calms in the bay are especially enduring and vexatious. Sailing ships can get out of the bay prettily easily, to begin their voyage across the Pacific; but on returning there are mostly either calms or winds in the wrong direction. Ships have been known to suffer so lengthened a detention that provisions ran short, and some of the crew had to row to the shore to avert starvation. On other occasions sailing vessels have had to be towed seven hundred miles by a steamer before they could catch even what seamen call "a cap-full of wind." The Admiral pronounced more favourably of the Tehuantepec route, but drew attention to the prevalent winds on the Atlantic side known as the "Northers," and to the heavy cost of constructing harbours at the two ends of the canal. Of all the three routes he preferred that of Nicaragua, for the winds are less embarrassing, the climate less pestilential, and the region rich in coffee, sugar, rice, tobacco, cocoa, indigo, drugs and spices, and ornamental timber.

The Panama route, thus discouraged, is the very one which is now in high favour with the French, through the untiring energy of one of the most original men in Europe. Count Ferdinand de Lesseps, who so triumphantly overcame political, engineering, financial, and commercial difficulties in constructing the Suez Canal, now throws himself heart and soul into a scheme for a tide-level ship canal at Panama. He brought it prominently forward in 1878, when the great International Exhibition was held in Paris. A Congress was convened by De Lesseps and the French Geographical Society. About a hundred and forty members formed the Congress, mostly scientific and practical men. Colonel Sir John Stokes, with the permission of the Marquis of Salisbury (Principal Secretary of State for Foreign Affairs), was present on the part of England, but without official authority to

influence the result in any way. The United States Government confided a similar duty to Admiral Ammen, to communicate his own views of the subject to his Government, but not to announce any decision or wish on the part of the United States. The Congress appointed five committees of its members to examine certain preliminary matters—such as the probable amount of traffic on any canal in those regions; the probable working expenses to earn that traffic; the tides, winds, currents, calms, and storms on the two coasts; the probable capital necessary for the whole undertaking, and the mode of raising it. It was soon decided that no scheme, however well planned in other respects, should be countenanced if it involved the construction and use of locks, so unsuitable are they in a really large ship canal.

Various schemes were brought before the Congress, and weighed one by one. Most of them were for a canal in the southern part of Central America, more or less in the Panama region; but there were also the Nicaragua route and the Tehuantepec route. One scheme was disapproved because the canal would be too narrow and too shallow; another would include a dozen miles of tunnel; a third would involve a large number of locks; the Nicaragua and Tehuantepec routes were also met with objections. There remained De Lesseps' grand and bold conception of a broad and deep tide-level ship canal. It is difficult to shake off a surmise that very many members of the Congress were influenced by preconceived opinions. The indomitable De Lesseps is an immense favourite with his fellow-countrymen; they viewed with satisfaction the idea of the canalisation of Panama being effected by the sagacious man who began and finished the canalisation of Suez. At any rate, a large majority agreed to the following vote:—"This Congress believes that the construction of an interoceanic canal at tide-level is desirable in the interests of commerce and navigation, and possible of execution; and that it ought, to meet the requirements, to extend from the Gulf of Limon to the Bay of Panama"—De Lesseps' plan, in fact. The estimate of cost is vague but stupendous. It is calculated that to yield 4 per cent. on the capital, at a conjectural tariff of 6*s.* 8*d.* per ton of shipping for canal dues of all kinds, it would require 6,000,000 tons of shipping to pass through the canal annually, or over 2,000 tons every day.

In this way the labours of the Congress came to an end—the expression of opinion, not official proceedings. Admiral Ammen reported to the United States Government a brief account of the

decision and the reasons assigned for it. His report on the Nicaragua scheme was certainly favourable—rain not so abundant as to injure or delay engineering operations; good stone, lime, and timber along the line of route; abundance of cattle and food for the labourers; the people disposed to work if paid regularly; abundant supply of water in the great Lake; the western port excellent for shipping, and the eastern susceptible of being made so. Panama received a much less favourable character: two months' rain in average years; climate unsuitable for labourers to work; hardly any building materials along the line; and the people less willing than the Nicaraguans to work steadily. Of the Darien scheme, further south, his opinion was less favourable even than of that of Panama.

Captain Bedford Pim, as we have more than once implied, has long favoured the Nicaragua route for a canal. A few months ago he explained his views in a paper read before the Society of Arts. He is not unaware of the fact that the Atlantic end of the Nicaragua river is but ill-suited for a port. Robert Stephenson once told him that he was acquainted with the deltas of nearly all the great rivers in the world, and was not aware of any instance in which a harbour was successfully maintained at the mouth of such rivers. This was said more than twenty years ago; possibly the great engineer would have somewhat modified his opinion at a later date. The delta at the mouth of the Nicaragua river is very capricious; a ship of war in one year rode safely at anchor at Greytown, a lately built seaport at the mouth of the river; whereas ten or twelve years afterwards a sand-bar stretched nearly across, only leaving sufficient depth of water for very small craft; and this kind of alternation has since been repeated. The Captain consequently advocates what is known as Monkey Point or Pim's Bay, about forty miles north of Greytown, as the starting point of his canal. Eighty miles of wide cutting would have to be made; thence about two hundred miles of lake and river brings us to the Pacific at Realejo. The newly cut portion would not be a deep-water canal, only about eight feet in depth. Ships would be raised to higher and higher levels on iron pontoons, somewhat resembling that which is employed at the Victoria Docks below Blackwall to raise ships for cleaning and repairing the hulls. Mr. Edwin Clark, the distinguished civil engineer, assisted Pim in preparing plans for a series of these pontoons. Pim would begin by working out a route for a single line of railway supplementary to small lake steamers, to quicken

and cheapen the construction of the canal; he believes it would be worth while to maintain such a tramway or railway permanently. His estimate for canal, pontoons, railway, &c., is 6,000,000*l*. As to ways and means, the Captain suggests that England, France, and the United States, should guarantee 1 per cent. each on 6,000,000*l*., amounting together to 3 per cent. safe dividend. He believes that shareholders would be able and willing to make this up to a good substantial dividend if the Nicaragua Government would give them a plot of five acres of land for every 10*l*. share they buy and pay for. The reader will find it interesting to compare this scheme with the one put forth by Prince Louis, and described in preceding pages.

In a discussion at the Society of Arts, after the reading of Pim's paper, many doubts were expressed, and questions raised. One member expressed a fear about a supply of fresh water to feed the canal at the upper levels, there being not rainfall enough to keep up the supply in dry seasons. Another contended that forty pontoons will be needed, if the whole transit from ocean to ocean takes four days for a ship and cargo (which the Captain supposes it will) to convey ships enough to pay the working expenses, and leave a fair profit. The pontoons will be towed along by small paddle-wheel tug-boats.

As to any political difficulties that may arise, Captain Pim treats them thus :—"A canal across Central America would be the gate of the Pacific to the United States, a gate, moreover, which no American statesman would allow for one moment to be in the Governmental keeping of any other country whatever. England's concern in the undertaking is chiefly to obtain a supply of cheap corn from California," where it grows in vast abundance. Enormous quantities come to England *viâ* Cape Horn. It is obvious that, by shortening the passage and avoiding Cape Horn, freights and insurance would rule lower, and consequently grain could be placed in the English market at a lower price. "On the one hand, the canal could not be constructed without the full consent of the United States Government; on the other hand, it would not be made to pay without English capital. France has only a sort of sentimental interest in the matter, not so important as that of the other two countries."

Mr. Kiddle, Associate of the Institute of Civil Engineers, in a paper contributed to the "Nautical Magazine," has expressed an opinion similar to that of Captain Pim concerning the unsuitableness of Greytown as the Atlantic terminus for the canal. He

had been engaged in that region professionally, and knows its peculiarities. Like most practical men, he believes that there are more favourable points in the Nicaragua route than in any other along the whole length of the sinuous isthmus; but he objects to the starting-point. True, there is a safe bay in which four British vessels-of-war and three despatch-vessels were anchored at one time in 1856. Outside the bay, however, is a large shoal, formed of river silt from the west, meeting ocean sand from the east. Many years earlier this bar had no less than 22 feet of water on it; but in the year just named part of it was above water, sufficiently consolidated to grow useful vegetables. The "Northers" are great disturbers, and play havoc with the bar; they dislodge the silt and sand, and change the direction, as well as the depth and width of it. An Italian barque was within the port on one occasion, and could not get out again; the crew were saved, but the vessel abandoned. If the sand bar were reliable, the port of Greytown would undoubtedly have risen into notice and distinction. "Those founders of modern enterprise in the Caribbean Sea," as Mr. Kiddle justly calls the Royal West India Mail Company, "made Greytown a regular port of call for their steamers. The Americans also had a regular line in connection with boats and barges on the Nicaragua river, in such a way, that merchandise brought from the United States could be transhipped from the cargo steamers to the river barges and fly-boats. But the strange shifting of the sand bar ruined the whole arrangement; and there is little hope that Greytown will ever be fitted for the Atlantic port and terminus of an interoceanic canal."

Mr. Kiddle, glancing further south, briefly expresses his opinion concerning M. de Lesseps' proposed monster ship canal: "Great as must have been the difficulties in completing the Suez Canal, they cannot be compared with those that must unavoidably attend the construction of a passage through the Panama Isthmus. In the former, the command of labour was unlimited, and the cost of removing a cubic yard of sand could consequently be fairly estimated; but it is doubtful if the greatest engineer could even approximately state the cost of blasting a passage at Panama. In Egypt, a despotic Government simply required to know the number of labourers necessary, and the supply was forthcoming, at very low wages. On the Isthmus of Panama, on the contrary, the lowest rate is 6*s.* per diem: and even this will not tempt the natives to work steadily through the day."

The French, who have just annexed the Society Islands in the midst of the vast Pacific, are already speculating on the possibility that Tahiti (Captain Cook's *Otaheite*) may one day become a valuable naval and military station, almost exactly in the line of route from Panama to Australia and Suez—if and when De Lesseps' gigantic canal scheme is carried into effect. "There is much virtue in an if."

It may be desirable, in connection with these great canal schemes in Central America, to state that the leading review in France, the *Revue de Deux Mondes*, in the spring of the present year 1880, gave a valuable paper from the pen of M. Edmond Planchot on the subject. The reader will find in an earlier page of this sheet, that the Paris Congress appointed five committees to investigate an equal number of indispensable matters, and report thereupon to the body collectively. M. Planchot, apparently an unbiassed and impartial observer, commented on the *personnel* of the Congress, the number whose votes were to decide by majority whether approval or disapproval of the several schemes should be denoted. "Were they," he asks, "really competent to form any definite opinion on the matters submitted to their vote, problems demanding much time, and still greater knowledge and experience? We must be permitted to doubt it. We see prominent among the members the names of persons eminent on the Stock Exchange, and among financial speculators." This hit at the company-mongers and concession-seekers is sufficiently pointed. He describes these persons as being ignorant alike of scientific engineering and the physical geography of important regions on the earth's surface. "This was made apparent when the vote was taken, by the large number of absentees, or of abstainers from voting." In other words, they either stopped away or remained silent, because they did not understand any part of the enquiry, except the speculative guesses concerning capital, shares, loans, and other monetary matters. We may add, that M. Levasseur, President of the Committee on probable cost, traffic, and working expenses, pointed out how insufficient was the limited time available for such a labour. He declared that "It would require months, instead of a few days, to collect the numerous and varied documents, collate them, and determine their practical bearing."

GEORGE DODD.

SCHEMES FOR A EUPHRATES RAILWAY.

THE Euphrates, one of the most renowned rivers on the face of the globe, passes at one point temptingly near the eastern extremity of the Mediterranean, and has suggested to a multitude of minds the vast usefulness of a canal or a railway from the one to the other. Long ages ago an extensive trade was carried on between the river and surrounding regions. The Tigris, another river of great historical import, runs at no great distance on the east of the Euphrates, somewhat widely apart from it at the northern end, but approaching closer and closer towards the south, where they both enter the sea by the same estuary. Between the two is the classical and Biblical land of Mesopotamia.

Land transport by caravans of camels was the chief channel of trade in these regions in ancient times, when maritime routes were only in part available. The overland route from Europe to India was known as far back as the days of the Phœnicians, by land travel across the Isthmus of Suez and trading vessels down the Red Sea. The Euphrates was descended by traders in the time of the Romans; while the Indus was known to the same nation some centuries later as a water channel affording important aid in trading to and from India and Tartary or Central Asia. When, again, several ages later, the Saracens conquered Egypt, and closed the Suez and Red Sea route against Greek merchants, the latter availed themselves of the Indus in an extraordinary way in striking out a new route from Europe to the far East. Taking ship at Constantinople (in those days called Byzantium), they landed with their stock of European goods at Trebizond or some other port towards the eastern end of the Black Sea, crossed to the Caspian chiefly by land transit, and sailed in small vessels up the classical river Oxus. How they travelled from the upper waters of the Oxus to the nearest point of the Indus, over some of the highest land in the Old World, can now only be surmised; but they did so amid appalling difficulties and perils. Reaching the much-coveted India after a fearfully long and tedious journey, they sold their European goods at an enormous profit, and made still higher profits upon the gold and silver, silks and brocades, gems and precious stones, dye-drugs and perfumes, spices and gums, which they brought from India by a reverse route to Europe.

In still later ages, when Venice, Genoa, and other great Italian

cities rose to commercial eminence, the merchants established a trading route thence to Constantinople, where great encouragement was afforded to them, and where they were enabled to exchange European goods for the much-prized produce of India, brought to that emporium by the Persian and Central Asian routes. But to lessen the great cost of this mode of transport, they struck out a new system for themselves. They sailed from Italy to some one of the ports on the coast of Syria, thence took camel and caravan to Aleppo, Palmyra, across the Euphrates and Mesopotamia to the Tigris, and finally by sail down the last-named river to the Persian Gulf, and across the Indian Ocean.

The old luxuriance of the Mesopotamian regions, which ages of misrule have almost ruined, has been glowingly described by Mr. W. P. Andrew, whose right to be heard we shall notice presently: "On the once fertile plains watered by the Euphrates and the Tigris, the greatest and most glorious nations of antiquity arose, flourished, and were then overthrown. The earliest home of the genius of civilisation, the scenes of great events in the early history of the world, now shrouded in the dust of ages or dimly discerned through the long vista of many centuries; the land of the Assyrians, Babylonians, and Chaldæans; the land where the daughters of Zion sat and wept; where lay the track of Xenophon and his heroic ten thousand Greeks; the centre of the conquests of the Macedonians; where once stood the proud capitals of the Sassanides and of the Caliphs,—these regions must ever possess a fascination and interest for all mankind. The first city of the new Earth was built upon the banks of the 'Great River:' the tower of pride erected by the post-diluvian population as a shadow over its waters. The Euphrates intersected Babylon, the 'Golden City,' the 'Glory of Kingdoms,' the great capital of the Chaldæan Empire, now a desolation among the nations, her walls utterly broken, her gates burnt with fire. With Babylon are associated the names of Nebuchadnezzar and Belshazzar, of Daniel and Darius, of Cyrus and Alexander. The grand prophet of the Captivity and the energetic apostle of the next æra had their dwellings within her walls."

Besides the historical events so closely connected with this region, there is abundant testimony to the fact that the productive powers of the soil were most luxuriant. Fruits, both of the temperate and the torrid zones, trees and plants of valuable kinds, and corn in most of its varieties were grown there. The rich fertility of Mesopotamia was developed to its utmost degree by

means of numerous irrigation canals, with which the country was everywhere intersected; canals that excited the wonderment and admiration of Alexander the Great. Even now, after centuries of neglect and devastation, the soil retains its wonderful richness. The present schemes for a Euphrates railway partly base their claim for public favour on this ground. It is urged that by restoring the ancient trading route through Turkey to Persia, &c., not only would increasing commerce infuse new life into the people, but the soil would again pour forth its rich crops.

In 1867, when Turkey still possessed financial reputation sufficient for borrowing millions of money from English capitalists, the Ottoman Government offered what is called a concession for a railway from Constantinople through Asiatic Turkey to the Persian Gulf. But it was a mere form, seeing that a company would have to raise the money and construct the line, receiving a monopoly of the traffic. No such company came forward.

The placards which occasionally meet the eye in the shop windows of go-ahead and somewhat unscrupulous tradesmen, announcing (say) ten million yards of calico at one half the cost price of the raw material, could hardly give greater astonishment to an unenlightened public than did the heading "To India in Five Days!" This appeared in a pamphlet published nine or ten years ago. But whereas the calico we know to be mere bounce, the incredibly rapid journey cannot be proved to be incredible until carefully examined. The projectors, Mr. William Low and Mr. George Thomas, addressed their pamphlet to Mr. Gladstone as Prime Minister. The existing mail route to the East, as we know, begins with the English railway and a rapid steamboat passage across the Channel; it then goes by a continuous rail through France and Italy from Calais to Brindisi, *viâ* the Mont Cenis Tunnel; next by sea to the Suez Canal, Red Sea, Aden, and across the Indian Ocean. The absolute distance is about equal to that *viâ* Marseilles and the Egyptian Railway to Suez, but is accomplished in a shorter time, because it has less sail and more rail.

Our daring projectors would utilise the existing railways from Calais to Northern Italy, from whence a formidable length of new line would be constructed. The line would run to Trieste, then bend round the northern extremity of the Adriatic, and down the eastern shore of that sea to a point nearly opposite or parallel with Brindisi. Boldly striking eastward into the interior, the rail would cross the whole breadth of European Turkey

to Constantinople. Then, crossing the Bosphorus by a railway bridge (presumably a swing or turntable bridge, to afford a passage for ships), turning rather sharply to the south, the line would hug the coast of Asia Minor to Adalia, turn again east, and skirt the south coast of Asia Minor to Alexandretta, Iskanderoon, or Scanderoon (names devised to perpetuate that of the great Alexander). Bending next somewhat to the south-east, the invincible railway would dash along Asiatic Turkey to the upper extremity of the Persian Gulf. Keeping along the eastern shore of the gulf, and along the southern margin of Persia and Beloochistan, it would at length find its terminus at Kurrachee, a valuable commercial town and port at the mouth of the Indus. Two branches would give railway access, one to Smyrna and the other to Jerusalem.

From London to Kurrachee by this ambitious route would be 5,313 miles by rail and 28 by sea (Dover to Calais). Thence arises, or is hoped to arise, the startling "*London to India in five days!*" At a railway speed of thirty miles an hour, kept up continuously, the journey would be made in seven days thirteen hours; if forty miles an hour, five days seventeen hours; if fifty miles, four days ten hours. Hill and valley would be treated with a sort of contempt to keep such speeds in such a rugged country.

The enthusiam of the projectors is no less conspicuous when money matters are dealt with. The cost is set down at the stupendous figure of 41,000,000*l.*! Of this sum, measured according to mileage, 6,500,000*l.* would be spent in or for Austro-Hungarian territory, 7,250,000*l.* in European Turkey, no less than 14,500,000*l.* in Asiatic Turkey, 6,750,000*l.* in Persia, 5,500,000*l.* in Beloochistan, and 200,000*l.* for a few miles in India, near Kurrachee. The cost is roughly estimated to vary from 8,000*l.* to 17,000*l.* per mile.

But how to raise the money? "Ay, there's the rub." The projectors fondly hope, or profess to hope, that the several Governments will see to this essential particular. It is suggested that the cost of each section should be borne by the country through which it runs. Both through traffic and intermediate traffic would vastly benefit the various countries, and the respective Governments, we are assured, would find the investment pay well in the end. "There should be an Anglo-Indian company, responsible for the construction and maintenance of the through permanent way, and a group of subordinate companies responsible for stations, sidings, and other works neces-

sary for branches and local traffic. Under such an arrangement the through train from Calais to Kurrachee would take precedence of trains running shorter distances, these being shunted into sidings to make way for it. With this reservation, each local company might run its own trains between the termini and any point in its own territory. The stoppages between the two great termini in England and India should be few in number and short in duration—Calais, Paris, Turin, Trieste, Salonica, Constantinople, Antioch, Bagdad, and Bushire. One such grand train per day in each direction would suffice at first."

All very well on paper; but who can estimate the difficulties—national, international, political, geographical, topographical, engineering, financial—that would beset such a scheme from its very commencement? The *Times*, commenting on this excessively daring project, pointed to the great necessity there would be for a guaranteed protection of the line as an absolute neutral and peaceful territory in the event of war breaking out along its track, or in any of the countries through which it must pass: "We do not intend to express any opinion upon the practicability of the scheme thus sketched in outline. The difficulties in the way of its accomplishment are numerous, but we lack data for an opinion as to whether they would be insurmountable. They would probably depend far more upon the arrangements of details and conflicting claims and interest than upon the gigantic character and enormous cost of the undertaking. We may presume there can be little doubt that, at some not far distant period, direct railway communication between this country and India will be established." The *Times* was certainly more merciful than many of the scientific and financial journals, the writers in which at once derided the scheme.

It is well to bear in mind that the "Sick Man," though poor and poorly enough in 1871, is much worse now in 1880. Bankrupt in coffers and in credit, harassed on all sides, stripped of many provinces and likely to be stripped of more, distrusted and bullied in turn, he is truly in an ill condition to aid any great railway undertaking. So far from providing twenty-two millions sterling, he would find it difficult to raise one twentieth of the amount for such a purpose.

Somewhat before the appearance of Messrs. Low and Thomas's scheme interest in the subject of a Euphrates railway had been largely manifested in other quarters among persons who took a sober and moderate view of the subject, in reference both to the

welfare of Turkey and to the means of obtaining a quicker mode of transit between England and India than any at that time available. The protection of India from the hostile threats and intriguing manœuvres of Russia also influenced many persons in advocating increased facilities for conveying troops rapidly to our invaluable possessions beyond the Indus. It might at first thought be supposed that the Suez Canal has already effected this, by getting rid of the widely circuitous route round the Cape of Good Hope. To some extent it has done so, especially for ships bound to the south of India, Madras, Calcutta, the Straits Settlements, China, Japan, Australia, and New Zealand. But for the ports of India nearest geographically, such as Bombay and Kurrachee, the route *viâ* the Suez Canal and the Red Sea has certain disadvantages. There is a deep bend of the Asiatic coast northward after leaving Aden; this bend greatly lengthens what would otherwise be nearly a straight line.

Mrs. Burton, shortly after the time of which we have been speaking, but some years anterior to the period when Asiatic Turkey was plunged into the depths of degradation, starvation, and cruelty that have lately afflicted it, published a brief account of the journeyings of her husband and herself in Syria and the adjacent regions. Captain and Mrs. Burton are both of them familiar with the languages, the people, and the face of the country, and are well entitled to be heard; indeed, husband and wife have become almost semi-Oriental in their knowledge and sympathies. Discarding from their thoughts all schemes for railways through European Turkey and Asia Minor, they assumed as a basis the construction of a railway from the Syrian shore of the Mediterranean to the Euphrates, &c. While on the spot they examined some of the ports that possibly might be suitable for the starting-point. Alexandretta or Scanderoon has had a preference shown to it by many advisers in such schemes, on account of its position at the corner where Asia Minor and Syria meet. Captain and Mrs. Burton came to a conclusion adverse to this. Seleucia and Tripoli were also deemed unfavourable, leading to a region nearly as unfertile as that of Scanderoon. The travellers recommended either Tyre or Sidon, each of which has a small port susceptible of repair and enlargement. The line of railway, by means of a judicious *détour*, could be made to pass through a luxurious country to the once famous Baalbec, where branches would connect it with Damascus, Aleppo, and Palmyra. (How rich are the associations

of these names with the Biblical and classical days of old!) The line would reach the banks of the Euphrates at the town of Hit, up to which point the river is navigable all the year to and from the Persian Gulf. Many of the favourable uplands, now not one-twentieth part tilled, would again be cultivated. Sidon could easily be connected by a branch rail with Beyrout, the busiest port on the Syrian shore. When we compare this modest scheme with the daring projects brought forward by other persons, we must be struck with its moderation.

At the time of which we are speaking, say about ten years back, the English public were quite flooded with schemes for a Euphrates railway. Engineers, projectors, company-mongers, concession seekers, all competed one with another: each bent upon his own pet plan, and willing to throw cold water upon the plans of others. The Home Government were appealed to from so many quarters, that they consented to the appointment of a Parliamentary Committee of Inquiry. This committee, re-appointed in two following years, at length presented their report in 1872, accompanied with a vast body of information obtained from numerous witnesses of great distinction in the world—General Chesney, Mr. W. F. Ainsworth, Sir John Macneill, the engineer, Sir Henry Rawlinson, Mr. Eastwick, Captain Tyler, Field-Marshal Lord Strathnairn, Sir Bartle Frere, Mr. Palgrave, Lord Stratford de Redcliffe—all expressed their views on this important subject. Before noticing the report of this committee we will briefly advert to the experience obtained by many of the British Consuls in those regions. Earl Granville, at that time as now Secretary of State for Foreign Affairs, wrote to sixteen of them, directing them to report to him their opinions on the subject generally. One of the body, Mr. Consul Barker, responded quite enthusiastically. He was truly well entitled to be heard: having acted for a quarter of a century as British Consul at Seleucia and Antioch, and acquired as intimate a knowledge of those regions as perhaps any man then living. He entertained almost boundless hopes of the inestimable results that would follow from the cultivation of the land. "A railway through Mesopotamia," he said in his report to Earl Granville, "as a route to India would not at first be productive of much income to a company from traffic: but in a few years, certainly before the railway would be finished, the cultivation of grain would increase a hundredfold, and would go on increasing to a thousandfold, and would attain to a magnitude and extension

quite impossible to calculate; because bad harvests are almost unknown in these parts, for there is always plenty of rain and a hot sun to ripen the corn. Populous villages would spring up all along the line, as there is abundance of sweet water everywhere. Cereals could be grown there so cheaply that no country the same distance from England, say for instance Russia, could compete with it at all. And if Great Britain finds it necessary to rely more and more on the importation of foreign corn, where could a better field be found than the fertile plains of Mesopotamia?"

It is unpleasant to find one's thoughts constantly tempted towards suspicion of Russia whenever Southern Asia is mentioned. But there seems to be no help for it. Whatever may be the case with the present Czar and his Government, nearly all the Russian people entertain a longing desire to appropriate as much as possible of the territories belonging to their neighbours; while the Russian merchants are thorough believers in the potent merits of monopoly, protection, and favouritism. It is significant that in the roads and railways now being pushed on towards Armenia, Mesopotamia, the Caspian, Persia, and Turkestan, the trucks and carriages are so constructed as to be made available for the conveyance of troops and the munitions of war. To ignore these facts would be unwise, in the consideration of schemes for a Euphrates railway.

We now proceed to notice the chief points in the Report of the Select Committee of 1872, more than once adverted to.

From a comparison of evidence, they soon came to a decision that "no line of railway, starting from Trebizond or any other port of the Black Sea, would be of sufficient value to English interests to make it worth while to go deeply into that question." The Committee also quickly decided not to go minutely into the vast schemes for a railway from Constantinople right through the whole of Asiatic Turkey, and southern Persia. Thus confining their inquiry within moderate limits, they examined witnesses for a railway from the eastern shore of the Mediterranean to the Persian Gulf. They saw no insuperable obstacles to this. More than one port is open for choice at either end of the line. There would be no difficulty as to the necessary supply of labour and materials, and need be no apprehension of the works being injured by the inhabitants.

The plans laid before them comprised different starting-points and slightly different lines of route. One would begin at Scan-

deroon, or at Suediah at the mouth of the Orontes, pass near Aleppo, touch the Euphrates near Jaber Castle, and pass down the right bank of the river to Grane or Kowitt, on the Persian Gulf. A second would take the same starting-point, but would cross the Euphrates into Mesopotamia, get as near Bagdad as practicable, recross the Euphrates, and descend to the Persian Gulf. A third would endeavour to accommodate Diarbekr as well as Bagdad. A fourth would cross the Tigris as well as the Euphrates, and follow the left bank of the former river to the Gulf. A fifth would start from Tripoli instead of Scanderoon, cross the Desert near Damascus and Palmyra, and thence down the hither side of the Euphrates.

The Committee were informed that Scanderoon has a fine harhour, but an unhealthy climate, and is a difficult country to cut through ; whereas Suediah is more healthy, but has no port, and would require to have one made at great expense. It was decided that a practical Commission could alone determine these relative merits and demerits. Tripoli was deemed rather less favourable than Scanderoon as a starting-point, especially if at a future time the line should be required to join some railway through Asia Minor. For the Persian Gulf terminus, testimony was received in favour of Bussorah, Mohammerah, Core Abdullah, Grane, and Bushire as the port.

As to whether the Tigris should be reached or not, some say yes, because the line would attract a large amount of traffic, and would connect better with any extensive system ; while others say, "keep wholly to the hither side of the Euphrates, being shorter and cheaper to make, and quicker for the conveyance of mails, troops, and passengers to India." The Committee cautiously remarked that, if Turkish interests were the first considered, the one route would be selected ; if English, the other.

The important money question soon came on the *tapis*. "Is it worth the while of England to undertake the making of a line in conjunction with Turkey ; and is there, in that case, a probability that a practical arrangement can be made? There can be no doubt that if the Government of England were to give its support in the form of an adequate guarantee, the Turkish Government would give its general countenance to the undertaking, whatever might be the route chosen." Witnesses of great distinction agreed in opinion that it would, on many grounds, be worth the while of England to take a heavy liability in the matter ; Sir Henry Rawlinson and Lord Sandhurst ex-

pressed some doubt on this point. It became soon known that the Government of India would be glad enough to see the railway constructed, but would shun any responsibility as to making and maintaining it.

Sir George Jenkinson, a member of the Committee, had a lengthened conversation with M. Musurus, Turkish Ambassador to Queen Victoria, on all these matters, and submitted to him the written details of a definite plan. After a little delay, the Ottoman Government authorised Musurus to accept the plan. The scheme, given in brief, comprised the following particulars :— A Mixed Committee to manage the whole scheme ; an Ottoman loan to be guaranteed four per cent. by England, together with one per cent. for sinking fund ; the money raised on loan to be deposited in the Bank of England, and to be used solely for constructing the railway and providing the working plant ; all the necessary land to be given free by the Turkish Government ; the net income to be paid as earned into the Bank of England, and to be used solely towards paying the interest on the loan and a sinking fund for its redemption ; the Customs duties and port dues at the two termini to be utilised in a similar way ; British troops to be at all times permitted to use the line on the payment of stipulated charges ; British mails to be carried free : and lastly, the railway and plant to be deemed mortgaged until the loan is repaid, both principal and interest. Sir G. Jenkinson proposed that this agreement should be embodied in the report of the Committee ; but the majority of the members deemed it more prudent not to do so. The probability was suggested that the line and works would cost 10,000,000*l*. The aggregate merits of the Euphrates route were compared with those of the existing Red Sea route, and the Committee finally recommended as follows :—"That both routes should be maintained and used simultaneously ; that at certain seasons and for certain purposes each in turn would have some advantages over the other ; that it may fairly be expected that in process of time traffic enough for the support of both would develop itself, but this result must not be expected soon ; that the political and commercial advantages of establishing a second route would at any time be considerable, and might, under possible circumstances, be exceedingly great ; finally, that it would be worth the while of the English Government to make an effort to secure them, considering the moderate pecuniary risk they would incur."

As a matter of fact, this report of the Committee has produced

no definite practical result. Since it was prepared and presented Turkey has been plunged into complicated miseries, and the Governments have had no time to attend to any Euphrates railway; nevertheless the facts set forth will be useful for future reference.

The most recent addition to the detailed schemes on this subject was brought forward early in 1880 in an able paper read before the Society of Arts. Its author, Mr. W. P. Andrew, has many claims to be heard concerning it. During a long series of years he has been director and chairman of companies for establishing a steam flotilla on the lower course of the Indus, and a railway along the valley of the river, from Mooltan down to Kurrachee. He is deeply impressed with the importance to that country of rapid communication from England to Kurrachee. Mr. Andrew is not an advocate for any of the vast schemes that would involve twenty, or thirty, or forty millions sterling; his views are more moderate. He strongly urges the desirability of selecting Kurrachee rather than Bombay as the port for entering India, because it is many hundred miles nearer to the Persian Gulf, and because this route (as previous projectors have pointed out) almost escapes from the monsoon which, at one season of the year, so much retards the Bombay voyage to Aden and the Red Sea. Besides easy access by sea to the Indus Valley and its railways, Kurrachee will render assistance of momentous value in the event of lateral railways gradually creeping up into Afghanistan. Two of these lateral branches will unquestionably extend to, if not through, the Bolan and Khyber Passes, "and thus India will have a substantial frontier close to Afghanistan. What with the Euphrates Valley on the one side, and the Indus Valley on the other, it is believed that Russia (Russia again!) would be well outflanked by us in regard to any scheme of encroachment, while we could maintain a healthy competition for a portion of the trade to and from Turkestan and Central Asia."

This experienced observer, although, as we have said, dismissing from his limited plan all gigantic schemes for a continuous railway from Europe, has nevertheless so arranged that his line would form a portion of the great route, if the latter should ever be adopted. Taking Scanderoon on the Syrian coast as the western starting-point of his railway, it would there join any other line coming from Constantinople through Asia Minor; while at the eastern end on the Persian Gulf it might be made to form a junction with any line running from the Gulf through Persia and Beloochistan to Kurrachee. The line of rail from

Scanderoon to the Gulf by his route would be about 900 or 950 miles in length, through a country so flat that the cost of construction would be relatively small and the rate of speed obtainable high. Among those who think badly of Scanderoon as a starting-point he is not included; he believes that the harbour can be made capacious and safe at a moderate cost, and a good railway commence at its quays and docks. The line he sets forth is to pass near Aleppo, and after reaching the nearest point of the Euphrates, keep along the right or western bank of the river to the head of the Persian Gulf. By this course he avoids the inundations which often affect Mesopotamia, the country between the two rivers. The line would nevertheless in its course come within a few miles of Bagdad, the famous city of the Tigris, once the heart and home of the "Arabian Nights Entertainments."

Mr. Andrew, after treating with considerable fulness almost every part of the subject, summarises the advantages which would accrue from the construction of his railway from Scanderoon to the Euphrates and the Persian Gulf. It would be in connection with lines of good steamers at both ends. It would save a thousand miles of distance and many days of time, compared with the present Red Sea route. It would enable us to defend India with smaller garrisons than at present. It would greatly facilitate the conveyance of troops to India in times of exigency. It would enable us to check our potent antagonist on the flank and rear. It would facilitate the protection of Asia Minor, which much needs backing by a friendly Power not desiring annexation or conquest. It would tend to relieve Persia from part of the pressure now exerted on her by the great Colossus of the North, by opening to her a route to a port on the Mediterranean.

One more suggestion we must briefly mention is that of Commander Cameron, in a work published during the year 1880. As leader of the remarkable expedition in Africa, he earned well-deserved encomiums by his discoveries in the basin of the River Congo, the indomitable pluck with which he met and conquered the numberless difficulties and perils that beset him, and the admirable scientific observations he made day by day. Since his return from those explorations he has ridden and walked throughout the whole region included between the Mediterranean and the Persian Gulf. It is not necessary to detail his views: in minor points only does he differ from many of his precursors in the same region.

GEORGE DODD.

THE FOOD OF THE POOR.

A LIST of the articles actually eaten in different parts of the world would form a very curious document. Monkeys are eaten in both hemispheres, and their flesh is said to be palatable; in Java a sort of bat comes upon the table; in Africa the lion is laid under contribution, the lynx, the otter, the bear, the hedgehog, the kangaroo, the opossum, the bandicoot, the porcupine, the rhinoceros, the hippopotamus, are all eaten at times. The Hottentots are fond of the entrails of animals. The Zulus regard *carrion*—decomposing flesh in which the worms creep in and out, as the greatest of delicacies. Their name for this nastiness (*uborni*) is used as a synonym for the highest ideal of happiness. He would, perhaps, be a rash man who asserted that cats were not eaten in England. It is possible that asking no questions for conscience sake people may have partaken of poor puss, but that which may perhaps be done unintentionally here is done openly and extensively in China. During the siege of Paris 5,000 cats are said to have served the appetites of the beleaguered people. That dreadful catastrophe led to many culinary experiments. Dog's flesh, which has been eaten in various parts of the world, sold for 2 and 3 francs per pound. Horses were extensively consumed. Horse-eating is, however, common in various states and there was, and perhaps is, an active propaganda in its favour. "Siege Venison," as it was called, was obtained by the slaughter of 60,500 horses. Donkeys were also eaten. Ass flesh is said to be the chief ingredient in Bologna sausage.

Many birds have been used for food; amongst them, cuckoos, parrots, ostriches, cranes, bustards, gulls, swans, may be named. The superstitious reverence which once surrounded the albatross does not prevent it from being eaten.

Birds' nests of a certain kind are used in China as the basis of a soup; the nest is to a large extent made up of a peculiar mucus which the bird secretes and discharges from its mouth in great abundance. The nests are fastened to the rock and the task of collecting them by rope and ladder forms one of the trades of the Eastern Archipelago.

Snakes, tortoises, crocodiles, frogs, toads, sharks, are considered edible in certain quarters. Spiders, beetles, white ants, bees, moths, caterpillars, grubs, have also been served up. The cuttle fish, the vineyard snail, the sea-urchin and sea-cucumber have at certain times and places served the purpose

of the cook. Lastly, we may name the practice of cannibalism, which is not always accompanied by that extreme degradation and savagery we naturally associate with it.

Yet notwithstanding this seeming endless variety, food, and especially the food of the poor, is practically confined to a comparatively small number of articles. This will appear if we examine some typical cases from various lands. The frugality of the French peasantry has become proverbial, Mr. P. G. Hamerton says: "The way of living in a peasant's house is this : In the morning the men eat soup—that soup which Cobden praised as the source of French prosperity. It is cheap enough. For twelve people two handfuls of dried beans or peas, or a few potatoes, a few ounces of fried bacon to give it a taste, and a good deal of hot water. The twelve basins are then filled with thin slices of brown bread, and the hot water, flavoured with the above ingredients, is poured upon the bread. Boiled rice, with a little milk, is sometimes taken instead of soup. If the soup is insufficient, the peasant finishes his meal with a piece of dry bread and as much cold water as he likes, for of this there is no stint. The meal at noon is composed invariably of potatoes, followed by a second dish. In this second dish consists the only culinary variety of the peasant's life. It is either a pancake made with a great deal of flour and water and a few eggs, or a salad, or clotted milk. No wine or meat is allowed except during the great labours of haymaking and harvest. At these times a little wine is given with the water drunk at dinner, and a little piece of salted pork."

In the district around Brest the food of the farm labourers is chiefly soup made of barley and rye, potatoes, rye bread, *crêpes* or pancakes of rye flour. On Sundays and holidays they indulge in soup boiled in pig's lard but they rarely taste meat. The cost of this food varies from 4*d.* to 4½*d.* per individual. Cider is a common drink, and spirit drinking a vice of both classes. The Breton mechanic will have for breakfast, coffee or soup ; for dinner, bread and bacon ; for supper, soup, potatoes and fish when cheap, and meat once or twice a week. With the workmen of Havre soup and vegetables take the place of the more expensive articles eaten by the British mechanic. In the district around Marseilles the principal diet is bread and wine, but in the towns especially the taste for flesh meat is fairly established and successful workpeople live as those in England. Mr. T. C. Hunt, speaking of Bordeaux says :—

"Frenchmen live for less, in giving to vegetables at 1*d.* a lb. the place of the Englishman's meat at 9*d.*; but the latter finds that he cannot make this change in his life-long habits and keep up to the quantity of work he is now paid for. We know indeed that animal food finds its account in strength, just as the London beef-fed bricklayer lays 1000 bricks a day, while his Dorsetshire fellow workman on half the wages does only one-fourth of the work."

In Belgium white bread is used in towns and in the Walloon country, but in Flanders rye bread is universal. Butter and lard, green vegetables and pork, fresh and salted, are the chief elements of the dietary. Butcher's meat is only occasionally eaten and by the poorest not at all. The Antwerp artizan's chief meal is a vegetable soup, with potatoes and fish.

The labourer of Holland is described as being more happy and contented than those who earn higher wages elsewhere. Jealous of the liberty he has attained his energies do not seek the channel of political excitement but of personal endeavour. Breakfast, taken about eight, consists of a thin slice of black bread highly flavoured and sandwiched between two thicker pieces of brown or white and butter. This is washed down by coffee. Dinner requires a cessation from toil of about an hour and a half. After potatoes comes a hash of carrots, turnips or other vegetables, boiled in a liberal allowance of fat. This is followed by a cup of tea. Flesh meat forms no part of the bill of fare, though it may be indulged in at the Sunday meal.

The Saxon peasant lives upon bread, soup chiefly but not entirely vegetable, coffee, cheese, beer, and brandy. The industrial population about Bremen consume more flesh meat than in other parts of Germany and have also rye bread and farinaceous vegetables. About Königsberg the morning meal is chicory-coffee and rye bread; the dinner of *potage* of peas or potatoes, rye bread with bacon or river fish and vegetables in summer with schnapps or beer. In Wurtemburg the artizan has flesh meat daily and if unable to indulge in fresh meat eats sausage. Black bread is chiefly used at 1½*d.* per lb. whilst beer is 1½*d.* to 1⅔*d.* per quart. It is estimated that 220,000,000 bottles are yearly drunk of it.

The Italian labourers of Bastia live chiefly upon chestnut flour, from which the polenta is made. The cost per day for each man is about 3*d.* or 4*d.* The Genoese workman will have a *pasta* soup twice a day with bread and cheese, lard or fruit. A pint

of their wine will be the allowance of drink. The Sicilian artizan lives on bread and maccaroni, cheese, pulse, vegetables and fruit. To this he adds fish when it is cheap and flesh meat about once a week. The average daily consumption of a Florentine artizan when unmarried is coffee and bread 0*f.* 60*c.* soup 10*c.*, meat 40*c.*, wine 50*c.*, tobacco 7*c.* The total is 1*f.* 67*c.* The Italian peasants' diet consists largely of beans, olive oil, and maccaroni in various forms.

The Swiss workman lives chiefly upon bread of a fine quality, cheese, potatoes, vegetables and fruit. Flesh meat is not eaten more than once a week and then only in small quantities.

Bread and oil, occasionally seasoned with vinegar was the chief food of the Spanish peasantry in the last century, as Swinburne tells us. In Valencia at the present day breakfast consists of fish, bread, fruit, and wine ; for dinner a stew of codfish or more generally a thick soup of rice and beans, with bread, fruit, and wine. The supper does not vary much from the dinner. In the Basque provinces a vegetable soup known as *puchero*, with a little coarse meat or stock fish, oil, peas, and good bread are the staple articles of diet. The diet of the native of the Balearic Islands consists of bread, fruit, vegetables, fish, with butcher's meat in small quantities, and a little wine of the country. In Puerto Rico salt fish, dried beef, plantains, rice, Catalan oil, and garlic. The general drink is water, but rum is used as a luxury.

In Portugal maize and rye meal is the invariable bread food. Soup made of cabbage, rice, haricots, gourds, turnips, or onions, and oftener without than with flesh meat, is the general form of dinner. Codfish, sardines and dried cuttlefish also enter into his dietary. The chief drink is the common red wine of the country.

The Russian peasant, though capable of great exertion and fatigue, is coarsely fed. Butcher's meat, except in the large towns, is of very uncommon occurrence, the chief reliance being upon black bread, pickled cucumbers, cabbages, and mushrooms and other vegetables. At the close of the last century the allowance for the grenadiers—a remarkably fine body of men—was 8lbs. of black bread, 4lbs. of oil and one pound of salt for each man during eight days. The food of the Finlander is chiefly rye bread, potatoes, butter, milk, and salt herrings of which he is very fond. He has a weakness for schnapps and frequently celebrates Blue Monday.

Mr. Bremner gives the following amusing account of that

favourite Russian dish the soup called Betania. "A plateful of this yellow liquid, it ought not to be called 'soup'—was placed before us; with a scum on its top, something like a thin coating of sulphur. Adventurously diving through this surface, what did we discover? Lumps of rotten sturgeon, slices of bitter cucumber, spoonfuls of biting mustard— in short, a concatenation of all the most putrid, most acrid, most villainous substances that nature produces. The witches' broth was nothing to it :—

'Eye of newt, and toe of frog,
Wing of bat, and tongue of dog'

would be delicacies most exquisite compared with these Russian horrors. But, though both smell and sight were well nigh daunted, we resolved to persevere like men. We had begun the perilous adventure, and could not with honour draw back before taste had also been put to the proof. A spoonful of it was accordingly raised to the lips; when lo! besides other recommendations, it was found to be literally as cold as ice; for the mountain projecting above the surface, which we had innocently supposed to be some nice redeeming jelly of Russian invention, turned out to be a lump of ice from the frosty Caucasus, or some other vile place. That mouthful was the worst we ever swallowed. It would be impossible to depict the looks of anguish which we, a party of deluded, inexperienced Englishmen, cast on each other; we were more than satisfied,—we were humbled, silenced, overcome; and made a vow, before the whole company of strangers, never more to be lured into an attempt to make new discoveries in the adventurous region of Russian dishes."

The agricultural population of Sweden subsist chiefly upon potatoes, rye, oats, and barley. On the northern seaboard beans and peas are cultivated. Salt herrings are eaten plentifully, but butcher's meat is rarely seen and then chiefly in the form of smoked pork. Further north barley is the only cereal grown. Milk, however, is used abundantly everywhere. In the artizan class there is a larger consumption both of flesh meat and of spirits.

In Greece very little flesh meat is eaten by the workmen. Their diet is chiefly bread, cheese, fruit, and salt fish. The Epirote workman lives chiefly upon Indian corn and rye bread with cheese, olives, onions, leeks, and garlic. His greatest luxury is black coffee.

The late Sir William Fairbairn said: "I observed on a late journey to Constantinople, that the boatmen or rowers of the

caïques, who are perhaps, the first rowers in the world, drink nothing but water; and they drink that profusely, during the hot months of the summer. The boatmen and water-carriers of Constantinople are decidedly, in my opinion, the finest men in Europe, as regards their physical development; and they are all water-drinkers: they may take a little sherbet; but, in other respects, are what we should call in this country 'teetotallers.' Their diet is chiefly bread; now and then a cucumber, with cherries, figs, dates, mulberries, or other fruits which are abundant there; now and then a little fish: occasionally, I believe, they eat the flesh of goats, but I never saw them eating any other than the diet I have described. They eat about the same amount as European workmen; but if anything are more moderate as respects quantity." Near Ragusa the peasant's dinner consists of rice or Italian pastes as well as green vegetables and occasionally some animal food. His supper will be of cabbage and oil with bread. Strong red wine is the ordinary drink.

Very many of the working classes about Monastir live upon brown bread, of mixed grain, maize, wheat, barley, or oats. The meal of the day consists of stewed beans or lentils with the addition of leeks or onions, salt pickled cabbage, garlic, and red pepper. This mixture is eaten with the bread just described. Olive, hempseed, linseed, and sesame oils and salted cheese are occasionally used. There is a belief that new milk brings on intermittent fever and for this reason the Christians rarely use it.

The Cretan workman is frugal in his dietetic notions. Coarse bread, a few olives or some salt fish make up one of his ordinary meals. He is a large patron of vegetables cooked in oil. Grapes, figs, and melons are all cheap and largely used. The fast days of the Church extend to nearly a third of the year, and on them he abstains as a religious duty from flesh meat, fish, and eggs. In Cyprus 40lbs. of flour and 3lbs. of olives suffice a family of six for a week. In Damascus the diet of both Christian and Moslem is strictly vegetarian. The workmen are described as effeminate and indolent.

In Persia, the winter diet of a workman is chiefly bread, rice, cheese of an inferior quality, and tea. In summer, he varies this by melons, cucumbers, vegetable marrows, egg-plants, and various edible gourds. The average wage is not more than 21*s.* per month. In Bushire, fish and dates are stated to be the food

staples of the people. At Bagdad, water-melons, bread, and dates are the chief reliance of the working classes.

The poorer classes of Koordistan have only two meals a-day. Their diet consists of bruised hulled wheat, made in the house, and boiled into pilaf, with butter, milk, sour milk, and bread. Meat is little used, and only in the summer, when it is cheap. Fowls are, however, kept for the sake of eggs.

The living of one of the poorer classes of Morocco, consists each day of two penny loaves of bread and a bowl of gruel or soup made from millet. Couscusou is the national dish. It is a granular preparation of wheat, and is cooked in various ways.

In Southern India, the food grains chiefly used are several species of rice (*oryza sativa*), raggy (*elusine corocana*), great millet (*sorghum vulgare*), spiked millet (*penicillaria spicata*), Italian millet (*panicum Italicum*); little millet (*panicum miliaceum*), wheat (*triticum æstivum*); barley (*hordeum hexastichon*); and Indian corn (*zea mays*). The chief legumes are dhall (*cajamus Indicus*); green grain (*phaseolus radiatus*), black grain (*phaseolus mungo*); cooltee (*dolichos uniflorous*); lentil (*ervum lens*); Bengal grain (*cicer arietinum*); and the common pea (*pisum sativum*). Those who do not use animal food employ dholl or some other member of the lentil tribe to the extent of four ounces daily in addition to the cereals. The Hindoo will not eat beef; the Mohamedan will not eat pork, but the Pariah does not even object to horse-flesh. Succulent vegetables and fruit are largely eaten. Lime-juice enters into many of the dishes used.*

In the Azores the ordinary food of the labourers consists of Indian corn bread, fish, cooked yams, pepper-pods; or, in the summer season, cucumbers. At Christmastide, each household kills a pig, and a portion is reserved for the use of the family. The diet of the labourers of Madeira consists of boiled Indian corn meal, pulse and succulent vegetables, and occasionally rice. These are flavoured by lard, and eaten with bread. Coarse fish and flesh are only occasionally used.

In Surinam, the working classes eat plantains, casave, salt fish, herrings, salt beef, and bread. The beverages are water and rum. Tea is little used. In St. Vincent the negroes live chiefly on maize, beans, mandioca, and fish. In the Islands of Ste. Croix and of St. Thomas, the negro workpeople live chiefly on

* See a paper by Mr. W. R. Cornish in the "Madras Journal of Medical Science," 1864.

the Indian meal and vegetables produced in their own grounds. To this diet they add salted fish and meats which are imported. The coal labourers of St. Thomas are chiefly women. Instances are known of their earning 12*s.* in one day for carrying 300 baskets equal to twelve tons, each burden being borne on the head.

The agricultural labourer of the Canary Islands lives principally on salt fish, potatoes and sweet potatoes, seasoned with oil and vinegar and garlic. There are also the fruits of the country. In place of bread he uses *gofic*, a compound made of toasted wheat, barley or Indian corn, ground into flour and mixed with water. This was the food of the Guanches of Teneriffe.

In Brazil the meals of the workman consist of dried or salted fish or meat with farinha, flour of the mandiosea root, a cup of coffee and a drink of *cachoss*. The labourers of San Paolo subsist almost entirely upon black beans and farinha with the occasional addition of *carne seca* (dried beef).

In Maceio, in Pernambuco, the chief reliance is on jerked beef and farinha or Mandroin, which is made from the cassava root. The latter is the real staff of life. Sweet potatoes, pumpkins, fish, oysters and mussels are also consumed. About Payta, in Peru, rice, beans, carrots, pumpkins, and onions, with a small quantity of meat, keep the natives in good hearty condition. The usual drink is pounded cocoa or chocolate.

In the Argentine Confederation, flesh meat, being cheap, is largely used as an article of food. The quality of beef and mutton is said to be poor. The potato is also inferior in quality, and hence the pumpkin is largely substituted for it. Cabbages, turnips, carrots, onions, radishes, peas and beans are good in quality, but are from 100 to 300 per cent. dearer than in England.

Of the food of the poor in America, Mr. E. M. Archibald says :—

"As to diet, the labourer in this country consumes, in general, more of animal food than in Great Britain. The same description of food as that to which he has been accustomed, is equally suitable to him here ; but the greater variety of edibles, indifferent cookery, the predominance of bad pastry, and the free use of lard in baked and fried meats and dishes (owing partly to the universal use of cooking stoves, instead of open ranges or grates), disorder the stomach and produce the common complaint of the country, dyspepsia.

"There is nothing in domestic economy in this country which more needs a radical reform than the general style of cookery, especially amongst the poorer classes. The excessively high prices of wholesome beer is almost prohibitory to the labouring man, although, of late years Lager beer is increasing in consumption, especially among the German population. Tea or coffee for breakfast, and tea with supper are the common beverages.

"The only stimulant which is accessible to the labourer at a moderate rate, is a vile compound passing under the name of whiskey."

What, in view of preceding data, we must call the more luxurious standard of the American workmen is further evidenced by a comparison of the dietary of English and American prisons.

Diet at the Massachusetts State Prison :—

Breakfast.

Sunday, rice and molasses, white bread, coffee.
Monday, fish-hash, white bread, coffee.
Tuesday, meat-hash, white bread, coffee.
Wednesday, potatoes, salt pork, white bread, coffee.
Thursday, meat-hash, white bread, coffee.
Friday, fish-hash, white bread, coffee.
Saturday, meat-hash, white bread, coffee.

Dinner.

Sunday, meat-hash, Graham bread, coffee.
Monday, corned beef, vegetables, white bread.
Tuesday, baked beans, brown bread.
Wednesday, beef soup, white bread.
Thursday, pea soup, white bread.
Friday, baked beans, brown bread.
Saturday, pea soup, white bread.

Supper.

White bread, coffee.

Diet in Prisons in Great Britain.

Breakfast.

Three-quarters of a pint cocoa, bread.

Dinner.

Sunday, four ounces cheese, bread.
Monday, four ounces of mutton, half-ounce of onions with bread, one pound potatoes, bread.

Tuesday, one pint soup, made of eight ounces shin of beef, one ounce pearl barley, three ounces of fresh vegetables, one pound potatoes, bread.

Wednesday, same as Monday.

Thursday, one pound suet pudding, made of one and a-half ounces suet, eight ounces of flour, six and a-half ounces water ; one pound potatoes, bread.

Friday, four ounces of mutton, half ounce of onions with bread, one pound potatoes, bread.

Saturday, same as Friday.

Supper.

One pint oatmeal gruel, bread.

To those Englishmen who come fresh to the subject the first impression will be that of astonishment at the small part which flesh meat has in the dietary of those who do the rough work of the world. The particulars we have given of the dietary of labourers under very varied conditions of climate and social well being are taken chiefly from the Foreign Office Reports on the Condition of the Industrial Classes. They amply confirm the previous statements of Le Play, Sargant, and other writers upon this topic. Mr. Brassey gives various instances in which the English navvy accustomed to solid food and a dietary with a liberal admixture of flesh meat, excelled in power of work his comrades of France or Belgium living on the natural soups and bread. Against this we may place the evidence of Darwin, who visited the mines of Chili in 1834. Beardless young men of 18 or 20 with little muscular development were seen by him employed in this labour. The mine is 450 feet deep, and each man brings up a load of about 200lbs. weight. With this they have to climb up the alternate notches cut in the trunks of trees placed in a zigzag line up the shaft. They live entirely upon beans and bread. The men would prefer the latter alone "but their masters finding they cannot work so hard upon this, treat them like horses and make them eat the beans."

Winwood Reade calls the Kroomen of Cape Palmas the strongest men in the world. "They will work from morning till night under the hottest sun and in a malarious atmosphere on a few handfuls of rice per day as no other men can work."*

* *Times*, September 27th, 1868.

The following, from a table prepared by Dr. Frankland, is instructive :—

WEIGHT *and* COST *of various Articles of Food that would Require to be Consumed in the System to Raise the Body of a Person weighing* 10 *stone, or* 140*lbs., to a Height of* 10,000 *feet.* (*Frankland*).

Name of Food.	Weight in lb. required.	At per lb. s. d.	Cost. s. d.
Oatmeal	1·281	0 2¾	0 3½
Arrowroot	1·287	1 0	1 3½
Flour	1·311	0 2¾	0 3¾
Peameal	1·335	0 3¼	0 4½
Ground rice	1·341	0 4	0 5½
Bread	2·345	0 2	0 4¾
Lean ham (boiled)	3·001	1 6	4 6
Lean beef	3·532	1 0	3 6½
Lean veal	4·300	1 0	4 3½
Potatoes	5·068	0 1	0 5¼
Whiting	6·369	1 4	9 4
Apples	7·815	0 1½	0 11¾
Milk	8·021	0 5 per qrt.	1 3½

The *Spectator* summed up the general view of the matter in dispute between the flesh-eaters and the vegetarians in the following manner :—"It is reported in every direction that the Harvard crew trained on milk, vegetables, and fruit, and great surprise is expressed that they should have been so nearly successful. Their victory certainly would have been a triumph for the teetotallers and the vegetarians ; but, after all, we see little ground for amazement. Half mankind swallows neither alcohol nor meat. A Turkish hamal would take an English porter and his load on his shoulders and walk away comfortably, and he never drinks anything stronger than coffee, while a Highland keeper, bred up on milk and oatmeal, will walk most other men down. Meat is good, and alcohol good, but there is little in meat that does not exist in milk, and alcohol is only good as a whip, enabling the taker to crowd twenty minutes' work into ten. We leave the *Lancet* to decide the point, but we see no real reason why a bread-eater should not do all the work of a flesh-eater and suffer less. The real point is, with the vegetarian, as with the teetotaller, whether he gains enough to repay him for giving up a justifiable pleasure, in a world which has so few justifiable pleasures to offer."

Let us now turn to the United Kingdom. In 1350, the meals provided for the mower and the reaper consisted of a few fish, principally herrings, a loaf of bread and some beer. At the close of harvest came the rural feast of the harvest-home, when flesh meat and cheese was on the board.* An Act of Parliament passed in 1363 orders that the servants of lords and

* Eden's "State of Poor," i, 15.

artificers and tradesmen should be served once a day with meat or fish, and the offal of other victuals, such as milk and cheese. At the close of the last century Sir F. Eden pointed out a notable difference in the quality of the dietaries in the north and south of England. In the southern counties, bread and cheese and tea were the rule. In the north, hasty pudding, crowdie or brose, fromenty, sowens, pease-kail, and especially potatoes are named with commendation. Thar-cake, bannocks, clap bread are named and the handsome looks of the Haver cake lads of the 33rd Regiment are duly praised. In the present day the oat cake is not nearly so common. It is to be regretted that the poorest classes, in towns at least, have adopted the modern fashion which has set in distinctly for white bread. Brown bread is rarely seen in the homes of the town poor. The folly of this emasculation was pointed out long ago by Clement of Alexandria who says that "epicures even make that plain fare bread effeminate sifting out the nutritious part of the wheat, so that necessary food becomes a reproach of pleasure." (*ἀλλὰ καὶ τὴν εὔκολον Βρῶσιν τὸν ἄρτον ἐκθηλύνουσιν ἀποσήθοντες τοῦ πυροῦ πυροῦ τὸ τρὸφιμον, ὡς τὸ ἀναγκαῖον τῆς τροφῆς ὄνειδος γίνεσθαι ἡδονῆς*). This book of Clement is full of sound lessons on plain living.

It is estimated that by the present system of grinding not more than eighty per cent of the food value of the wheat is made available.*

Dr. Smith, as the result of exhaustive inquiries finds that English farm labourers obtain weekly 12⅓ lbs. of breadstuffs, those of Scotland 12¾ lbs., and of Ireland 20½ lbs., so that England and Scotland stand at the foot, and Ireland at the head of the list. Of indoor operatives, silk-weavers obtained 9½ lbs., needlewomen 7¾ lbs., kid glovers 8¾ lbs., shoemakers 11¼ lbs., and stocking weavers nearly 12 lbs.—quantities below those of outdoor labourers, and differing as 9·6 lbs. to 13¼ lbs.

Separated sugars were obtained by 98 per cent. Of the farm labourers in England, 92 per cent. in Wales, 96 per cent. in Scotland, and 82 per cent. in Ireland, and the quantity per adult weekly was—England 7½ oz., Wales 7½ oz., Scotland 5¾ oz., and Ireland 4¾ oz.; so that Wales occupied the head, and Ireland the foot of the list, both in frequency and quantity. Of indoor operatives, silk weavers obtained 7½ oz., needlewomen 7¼ oz., kid glovers 4¼ oz., shoemakers 10 oz., and stocking weavers 11 oz., and hence the average was higher than that of

* "Food Journal," No. 1.

out-door labourers, as 8 oz. to 6·6 oz. The frequency with which they were obtained was the same in both classes on the whole average. Separated fats were eaten less universally and in less quantity than sugars. Thus, of farm labourers in England 99 per cent., in Wales 92 per cent., in Scotland 93 per cent., and in Ireland only 42 per cent. obtained separated fats; and the weekly quantity per adult was—England 5½ oz., Wales 5¾ oz., Scotland 4 oz., and Ireland 1¼ oz., showing great disparity in the quantity and frequency between Ireland and England; but placing them in the same order as in that of sugars, silk weavers obtained 4½ oz., needle-women 4½ oz., kid glovers 7 oz., shoemakers 5¾ oz., and stocking weavers 3½ oz.—quantities much below those of out-door operatives in England, but identical on the average of both classes.

Meats were eaten among farm labourers by 99 per cent. in England, 84 per cent. in Wales, 72 per cent. in Scotland, and 59 per cent. in Ireland, in quantities per adult weekly of 16 oz. in England, 12¾ oz. in Wales, 10¼ oz. in Scotland, and only 4½ oz. in Ireland, yielding a higher return in reference to England than was expected, and showing how low Ireland stands both in frequency and quantity.

Of indoor operatives, silk weavers obtained 7¼ oz., needle-women 15 oz., kid glovers 18¼ oz., shoemakers 15¾ oz., and stocking weavers 11¾ ozs.—quantities relatively high, but on the average very slightly less than those of out-door labourers.

Of out-door labourers 72 per cent. obtained milk in England, 100 per cent. in Wales and Scotland, and 98 per cent. in Ireland; and whilst the quantity per adult weekly was only 32 oz. in England, it was 85 oz. in Wales 124¾ oz. in Scotland, and 135 oz. in Ireland—quantities greatly in favour of the Irish and Scotch peasantry. The quantity obtained by in-door operatives was very small, viz.: 22 oz. by silk weavers (including those of Macclesfield), 7 oz. by needle-women, 18½ oz. by kid glovers, 18 oz. by shoemakers, and 24¾ oz. by stocking weavers. The amount was small in London. Among farm labourers 59 per cent. obtained cheese in England, 72 in Wales, 48 in Scotland, whilst it was almost unknown in Ireland. The quantity per adult was 5½ in England, 9½ in Wales, and 2½ in Scotland.

Of in-door operatives shoemakers obtained 3½, stocking weavers 2½, and kid glovers in Somerset 1 oz.

In the diet of the Irish peasantry butcher's meat plays a very

small part. Bacon and geese are used, but only on Sundays and high days. In the north-west mussels, cockles, razor-fish, &c., are in demand. The farm labourers permanently engaged have flesh meat two or three times a week. The main stay of the agricultural population of Ireland is on potatoes, green vegetables, bread from the baker or home made, oaten or Indian meal porridge, sweet milk, buttermilk, and tea.

Mr. Edward Curling, the agent to Lord Devon in 1866, in order to corroborate some evidence he had given, asked two of his lordship's tenants at Ballyhogan when they bought bread. "Bread, sir?" "Yes, surely you either buy bread or bake it at home?" "We never have any bread except when the priest holds a station at our houses, and we must have some tea and bread and butter for him." "Well, but you have plenty of meat, as of course you kill a pig occasionally, and salt the meat for yourselves?" "No, sir; we sell all our pigs at the fair, and we and our families live on potatoes and skimmed milk and yellow meal." These were the most improving of the mountain tenants. One tenant of the estate, whose fare was buttermilk, potatoes, and Indian meal purchased 10,000*l.* worth of property.*

It is a curious and suggestive fact that during the prevalence of the cotton famine in Lancashire, when many of the operatives endured great privations, the death rate actually decreased. There can be little doubt that one chief cause was the enforced abstinence from intoxicants, the consumption of which with its attendant evils has been a great cause of the disease and crime of the County Palatine.

Free trade has had a wonderful influence upon the food of the nation. It places the fruits of the world upon our tables. The cattle trade from Russia and America is very great, whilst the tinned meats of Australia are entering more and more largely into consumption. Portugal and Lisbon send us potatoes; asparagus comes from the South of France; cauliflowers from the Scilly Isles; lettuces from France; onions from Lisbon; Oporto, and the South of Spain; garlic comes from France and Spain; cabbages from Ireland; cherries from France and Portugal; pine-apples from Fernando Po, Sierra Leone, Nassau, and Bermuda. Apples come from America, Spain, Portugal, and the Channel Islands. The orange is sent here from Portugal, Spain, Africa, Malta, Sicily, Valencia, Malaga, and the Azores.

The benefits of free trade would be still greater if Englishmen

* "Dietetic Reformer," ii, 93.

were less conservative in their dietetic habits, and more willing to vary their daily food.

The increasing use of the lentil is largely due to the enthusiastic letter concerning it addressed by Mr. W. Gibson Ward to the *Times*. Lentils are amongst the oldest known of foods, and their enthusiastic admirers have not hesitated to say that Esau did not make a bad bargain when he sold his birthright for a mess of this pottage. They contain, according to Payen, of nitrogenous matter 25·2; starch, &c., 56; cellulose 2·4; fatty matter, 2·6; mineral matter, 2·3; water, 11·5 = 100. The increased use of lentils may perhaps be taken as an indication of greater willingness to try foreign innovations. If so, we may hope to see additions made to the food of the poor from many sources that are now neglected.

The tomato is another fruit which might with great advantage be made to enter more freely into the dietary of the poor. In the United States, it is one of the most popular of fruits. In California, it grows as freely as groundsel in England. The yield is so great as to literally bear down the plant with the weight of its fruit. In England, they would for the most part have to be raised in frames. The tomato lends itself to every variety of culinary treatment. It can be stewed, baked, preserved, used either as a savoury or a salad, or eaten raw. The taste is one that repels some palates at first, but the most fastidious objector soon becomes an ardent admirer.

Amongst the neglected sources of food supply, we may name the mushroom. Enormous quantities are every year allowed to rot. Yet they contain a large proportion of nitrogenous, or flesh-forming matter. In Italy, they are regularly cultivated for the market. Here the fear of the poisonous species has hardened into a superstition. The *agaricus campestris* as a rule, is the only kind eaten in England. Yet there are some forty varieties of an edible kind. When gathered fresh, they are a delicious addition to the dietary, but like flesh meat, they quickly putrefy, and hence should be eaten whilst fresh, or preserved from decay by drying or pickling.

In poor neighbourhoods, great advantage would arise from a system of co-operative cooking. When the individuality of our race will admit of the experiment of joint action, we may expect to see many advantages. Dr. Nichols truly says: "If from 20 to 100 families, living in the same neighbourhood, were to unite, they could buy everything at an average reduction

of 20 to 30 per cent., have one kitchen instead of 20 to 100, one head cook, and from two to five assistants, and savings which would make an aggregate reduction of 30 to 50 per cent., while the food might be better prepared and more satisfactory. And what a saving of time, trouble, fuss, and worry!"

The advantages of co-operative diet are shown in the case of Count Rumford's experiments. His famous soup for 1,200 persons was thus composed :—

Barley, 70 lbs., cost 5*s.* 9½*d.* ; peas, 65 lbs., cost 3*s.* 6*d.* ; potatoes, 230 lbs., cost 2*s.* ; cuttings of bread, 70 lbs., cost 10*s.* ; salt, 18 lbs., cost 1*s.* 2*d.* ; Vinegar, 46 lbs., cost 1*s.* 6*d.* ; water, 282 lbs. ; total weight, 1,481 lbs., servants, fuel, &c., 3*s.* 6*d.* Total cost, 1*l.* 7*s.* 5½*d.*

There is great neglect in English households of the pleasant meals that may be prepared at a slight cost. Every opportunity should be taken of imparting a knowledge of cheap cookery to those whose scanty means are made still scantier by injudicious selection of dear food. The "Robin" dinners given to poor children might be made useful in this manner, and are perhaps as harmless a form of charity as could be devised. Even though it be wrong to weaken parental responsibility, it is worth while running the risk for the sake of securing the children a substantial and healthy meal. Few know how cheaply this can be done. At Liverpool, 15th Feb., 1879, 106 poor ragged children (54 boys and 52 girls) sat down to a stew composed of the following materials :—14 lbs. split peas, 40 lbs. of potatoes, 10 lbs. onions, 4 lbs. carrots, 4 lbs. turnips, 4 oz. sage, ½ oz. pepper, 1 lb. salt, and two bottles of olive oil. This stew, together with 50 lbs. whole meal bread, formed the simple bill of fare. Several ladies and gentlemen were also present, making the number who partook of it 120. All pronounced it excellent, while the cost was less than 1½*d.* per head ; and though all were served twice round, a considerable quantity remained to be given away.

At Monkwearmouth a similar feast was given to 380 children at an average cost of a fraction over 1¼*d.* per head. 1½ stones of hominy, 1 stone of barley, 1½ stones of Sultana raisins, 6 tins of condensed milk, and 1½ stones of moist sugar were boiled together in 50 gallons of water, until the whole was of the consistence of a very thick soup. It was then served in basins to the children with substantial slices of brown bread, for which, in the aggregate 15*s.* were paid. A more wholesome or a more toothsome dish it would be difficult to find at anything like a similar cost.

The possibility of economical dishes from which flesh is excluded may be further illustrated by this programme of sixteen good dinners costing 4*s.* 11½*d.*, and consisting of 15 lbs. potatoes, 9*d.*; 3 lbs. flour, 6½*d.*; ½ lb. butter, 7*d.*; vegetable marrows, 9*d.*; sage and onions, 2*d.*; split peas, 2*d.*; celery and carrots, 1½*d.*; sugar, 3*d.*; milk, 2*d.*; currants and raisins, 6*d.*; candied lemon peel, 1*d.*; fruit 10½*d.*; total, 4*s.* 11½*d.*

The chief requirements of an ideal dietary for the poorest are that it should be plentiful, varied, cheap, and nutritious. Tea and coffee, though admirable substitutes for intoxicants, contain no nutrition.

There is a large amount of superstitious dread of fruit amongst the poorer classes. They are not always able to command the ripest and best quality, and the prevalence of diarrhœa in great cities is often attributed to this cause. Unripe fruit, new potatoes, cucumbers, are credited with being the cause of the mischief which undoubtedly prevails. Yet as diarrhœa epidemics are coincident with the existence of hot weather, and as it is most fatal amongst infants, whilst unripe fruit most abounds in cold summers, there is every reason to suppose that this is a popular delusion. The prevention of this disease will be accomplished not by the fear of a plentiful fruit diet, but by sanitary arrangements which will remove the decaying animal and vegetable matter which now fester in our great towns, for when the sun, "being a god kissing carrion" pours down his strength upon these impurities, they "taint the ambient air" with seeds of disease and death.

The great defects of the food of the poor in England are its want of variety and its bad cooking. The nourishing soups which form so important and economical a feature in continental dietaries are to a large extent absent from the cookery of our working classes. They are condemned as "slop" by those who yet frequently indulge in the facile but deceptive cheapness of tea dinners. The teaching of domestic economy in the day schools, the growing frequency of cookery classes will, it may be hoped, gradually bring about greater knowledge and a better disposition of those "kindly fruits of the earth," in their appointed ministry to the health and strength of mankind. WILLIAM E. A. AXON.

NOTE.—There is an extensive literature of dietetics, but it may be sufficient to refer the reader to Foods by Edward Smith, F.R.S. (King): Economy of the Working Classes, by W. L. Sergant, London, 1857; Treatise on Food and Dietetics, London, 1874; Fruits and Farinacea the proper Food of Man, by John Smith, abridged by Prof. F. W. Newman (Vegetarian Society); Food for the People, by W. Gibson Ward, (Vegetarian Society); Foreign Office Reports on the Condition of the Industrial Classes (Parliamentary Papers).

PARKS, GARDENS, AND OPEN SPACES IN AND AROUND LONDON.

No city that the world has seen has ever created so gigantic a need as that which exists in our English Metropolis for the preservation of open spaces. The largeness of this need, in fact, only corresponds with the unprecedented vastness of modern London; for so immense a population was never before, in the world's history, concentrated upon one part of any country. London, indeed, could never have grown to its present dimensions had no provision been made for "lungs"—as the parks, gardens, or other open spaces of big cities are aptly styled—or, at any rate, if it had so grown, its population could not long have kept pace with the extension of its houses; for decimating disease, with a severity hitherto unknown, would inevitably, from time to time, have swept away the inhabitants of the central districts.

The Census of 1871 showed the enormous increase which had taken place in the population of the Metropolis during the preceding ten years; and the forthcoming Census will, doubtless, give an equally surprising result. There will, unquestionably, be abundant proof, when the new numbering has been gone through, of an immense advance—north, east, south, and west, of the rolling area of bricks and mortar. Yet, at this moment, in spite of its marvellous immensity, London continues to occupy the proud and pre-eminent position of the healthiest city in the world; a position, occupied and maintained solely on account of its admirable sanitary government and of the abundance of its open spaces.

Much of the advantage, however, which the Metropolis enjoys, in the matter of its open spaces, has been secured only as the result of persistent and untiring personal effort. Whenever individual human lungs are affected, the most scrupulous care is taken to provide a remedy for the disease. But on the principle that what is everybody's business is nobody's business, little care had been taken, until within comparatively recent years, to provide adequately for city lungs. Public feeling on this subject is now exceptionally strong; but little more than ten years since, this feeling was almost non-existent. Its growth and development were, therefore, entirely due to individual effort, largely aided of late years by the Press and by corporate and municipal

zeal, which, however, has been prompted and stimulated by individual example.

London, it is true, possessed some royal parks whose existence dates from a period considerably anterior to that which we have just indicated; and it possessed certain common lands—free from time immemorial to all pedestrians. It had, moreover, on its north-eastern confines, the magnificent remains of a royal forest. But what a Saturday Reviewer has happily called "the unsatisfied, crawling, hungry tide of London brick and mortar," was surrounding and impatiently pressing upon all sides the too-limited green oases of the great city, and flowing at the same time outwards upon the country beyond. The houses grew apace, and yet there was not room for the tens of thousands of country people annually migrating to the Capital. So the greed of building speculators and others was aroused, and covetous eyes were fastened on the open spaces of the public. The royal parks were under Government control, and they could not, therefore, be touched. But the commons—everybody's property—unfenced and unprotected, were looked upon as fair game, and raids were straightway made upon them in all directions in the interests of the demon of building. Then arose a desperate struggle between the would-be enclosers and appropriators of common lands and the volunteer defenders of common rights.

All this while, however, mile upon mile of the belt of the country immediately investing London was being quietly covered with houses, and as no legal question could be raised concerning the appropriation of private property, for which a fair, and very heavy, price had been paid, the only course open to the friends of open spaces was to educate public feeling to a belief in the necessity of the retention of breathing spaces, so as to obtain means to secure them ere it was too late. The legal proceedings instituted to prevent the enclosure and appropriation of common land served the useful purpose of attracting prominent public attention to the subject itself. And hence associations, instituted and maintained by the efforts of public-spirited individuals, were formed to protect the public interests; and there can be no question, therefore, that the present state of public feeling with regard to open spaces in and around London is, as we have said, entirely due to persistent personal effort maintained in the face of difficulties of almost every imaginable kind.

These difficulties need never have arisen had the Government of the day come to the rescue of the public. No attempts, as we

have seen, were made to enclose those parks or pleasure grounds placed under the immediate administration and control of Government Departments, actively charged with the duty of maintaining such spaces for the public use and enjoyment; and the grounds since and similarly placed under municipal control have secured equal protection. The bodies especially referred to here are the Commissioners of Works and Public Buildings, the Corporation of London, and the Metropolitan Board of Works. But in mentioning the first-named of these bodies, the reference must be understood to apply to it since it has had a separate existence. Prior to 1851 the Commissioners of Woods and of Works were one body. In that year, however, they separated and assumed distinct functions, and whilst, so far as the subject of this paper is concerned, the Commissioners of Her Majesty's Works by their excellent and efficient administration have conferred great benefits upon the metropolitan public, the action of the Commissioners of Woods and Forests has been of a precisely opposite nature. Indeed, one of the earliest acts of this body, after it had assumed a separate existence, did more, perhaps, than anything else to bring about the difficulties and complications which led to the long, determined, and enormously costly struggle for the preservation of Epping Forest. Between 1854 and 1862 the Commissioners of Woods sold the Crown rights over more than 4,000 acres of Epping Forest for about 4*l.* 10*s.* per acre—the whole of the rights over that large area being given up for 18,500*l.* As the result of litigation has shown, the purchase of these rights, as a cover for enclosure, was useless, for both the representatives of the Crown and the Lords of Epping manors, who purchased the rights of the Crown, appeared to have forgotten—or if they remembered they disregarded—the interests of the Commoners, a body which has since, through its friends, succeeded in making its influence felt.

There will be more, anon, to say respecting the question of Epping Forest—a veritable *cause célèbre* about which there are some details of interest to relate, that could not be omitted without serious detriment to this paper. Meanwhile it will be necessary to indicate the divisions into which the subject of parks, gardens, and open spaces in and around London naturally divides itself.

First there are to be considered those public parks, gardens, or recreation grounds placed under the administration and control of Her Majesty's Commissioners of Works and Public Buildings.

Next there are the commons—or spaces over which the public have, or have had and enjoyed from what it is called "time immemorial," certain more or less clearly defined rights of "user." Then follow a third description of open spaces which may be referred to as "miscellaneous." These include private pieces of land, the gifts of individuals, or the purchases of municipal bodies—purchases made out of the public rates; public burying grounds turned into public gardens; and the gardens or enclosures of squares, commonly used by the tenants of the houses in such squares, and thrown open by consent of the occupiers, or owners. This last-mentioned kind of open spaces will scarcely come within the limits of this paper, because the grounds are in reality private and the public are only admitted to enjoy them on sufferance at stated hours. It is satisfactory, however, to notice that there appears an increasing disposition on the part of the owners and occupiers of such enclosures to throw them open for the public benefit.

Of the so-called "Royal Parks" or parks placed under the immediate control of the Crown and administered by the Commissioners of Works, perhaps the first to deserve notice, both on account of its extent and beauty, is Regent's Park in the north-west. Its area, the public portion, is 250 acres, but within it are the famous gardens of the Zoological and Botanical Societies. Its other important and noticeable features are its avenue gardens, beautifully laid out in summer with the choicest flowers—its lake, and its broad walk which is one of the most beautiful promenades in the Metropolis. The adjoining space—Primrose Hill, though only 50 acres in extent, affords, in fine weather, from the summit of its breezy knoll, one of the best "bird's eye" views of the great city anywhere obtainable.

Hyde Park—pre-eminently the sauntering ground of the West Londoner—deserves the next place in the enumeration of the Royal Parks. This fine space is 388 acres in extent, and like Regent's Park is liberally supplied with fine trees. Its "Rotten Row" which is perhaps the most fashionable promenade in the world, its Marble Arch, and its fine stream, the Serpentine, are too widely known to need more than casual mention. The fine areas of grass, the sub-tropical gardens, and the flower beds, are other features familiar to the summer frequenters of this fine open space.

The beauty of Kensington Gardens is probably exceeded by no city garden or park in any part of the world—not forgetting

in the comparison the *Bois de Boulogne* of Paris, or the charming little *Bois* of Brussels. Whilst walking amidst the magnificent groups of elms, beeches, and chestnuts which adorn what is unquestionably the finest recreation ground of Western London—the area of which is 282 acres, it is possible even to forget the proximity of the Capital and to indulge in arcadian dreams, so delightful are the sylvan surroundings. The Green Park has little in point of especial beauty to commend it, though it has some fine trees on its north-western side, and some pretty flower beds bordering on Piccadilly. Its green expanse is refreshing to town dwellers and as an open space it is precious. Its area is 55 acres: but it merges almost insensibly into St. James's Park which though small in extent—60 acres only—possesses some very fine trees, forming beautiful avenues. A prominent feature of St. James's Park is its delightful lake, enclosing a willow-covered island and offering excellent opportunity for skating in winter and for boating in summer.

Battersea Park affords a fine recreation ground for South Londoners. Its area is 198 acres, and it is very beautifully laid out—having indeed more the character of a large garden than of a park. It has an ornamental lake for boating and bathing in summer and for skating in winter, and amongst its especial features should be mentioned its sub-tropical garden, its elm avenue, its ride, a mile and a half in length, running along three of its sides, and its rosary. In addition to this fine park South Londoners possess in Greenwich Park 185 acres of open space and 18 more acres in the pretty little garden-park at Kennington.

None of the Metropolitan "Royal Parks" will, perhaps, better illustrate the necessity for the existence of gardens or "lungs" in the midst of populous cities than Victoria Park, which is essentially and pre-eminently the "poor man's park." It was purchased by the Crown under the authority of an Act of Parliament passed in 1842. The circumstances which led up to this purchase are exceptionally interesting. It may be said that the original proposition for the formation of a park in the East of London was made by the late Mr. George Frederick Young, M.P., who in conjunction with his son, Mr. Frederick Young, J.P., the chairman, and one of the most active and energetic promoters of the Epping Forest Fund Committee—took the most prominent part in the formation of a Committee which was established in 1840 for the promotion of their excellent object. In association with the late Mr. Young and his son was the

late Mr. Joseph Hume, who wrote to the former on the 18th of February, 1840, concerning a proposed site for a park for East London: "If such a piece of land could be purchased now on reasonable terms, we may be able to induce the Government to do so, as there is a disposition to aid in these good works." On the 1st of July, 1840, a public meeting was convened by Mr. Young's Committee at the London Tavern under the presidency of the Earl of Glengall; and, later on, a memorial to the Queen was signed by 30,000 people residing in the Tower Hamlets.

It is not necessary to refer in detail to the proceedings which ensued, but the general circumstances are interesting, as has been already said, on account of the principle of action which they represent. The Queen expressed her approval of the object of the memorialists, and the House of Commons passed a resolution in favour of their proposal, and it was subsequently arranged that a sum of 100,000*l.*, derived from the sale of York House, should be invested, under the authority of the Victoria Park Act of 1842, in the purchase of 290 acres of land in the Tower Hamlets. But the Act provided that one-fourth, or 72½ acres of the total of 290, should be reserved by the Crown as building sites. The actual number of acres, however, purchased for Victoria Park was 265, and by a subsequent Act, passed in 1852, it was decreed that of this quantity one-sixth, or 45 acres, should be set apart for building purposes, leaving 220 acres for the park. There was, however, at the time an understanding that if the population around the new park should increase very much, the whole should remain as recreation ground, and the "belt" of unlet building plots should not be utilised as originally intended.

In 1871 it was shown by the Census of that year that the population of the districts surrounding Victoria Park had considerably more than doubled since 1841, having risen from 309,367 persons in 1841 to 839,647 persons in 1871.

Towards the end of 1871, therefore, an association called the Parks Preservation Society, of which the present writer took the active direction, commenced a vigorous movement for the retention as open space and recreation ground of some 24 acres still left unappropriated by buildings of the original "belt" of Crown land. An appeal to the Government of the day to relinquish this land for the public benefit proved in vain—Mr. Lowe, the then Chancellor of the Exchequer, arguing that obedience to the principles of political economy forbade the

giving from the general purse of any funds for the benefit of a locality—a narrow-minded piece of sophism which led to a vigorous protest from an eminent political economist, Professor Fawcett, who in a letter read at a public meeting said, referring to Mr. Lowe's dictum on the subject; "It is not political economy, but a miserable and heartless cynicism, which sets greater store upon the saving of a few thousand pounds than upon the health, recreation, and enjoyment of thousands of our poorest fellow-countrymen."

But the land was secured in spite of all opposition by dint of persistent effort upon the part of those who were actively moving for its preservation. It was purchased in 1872 by the Metropolitan Board of Works for 24,500*l.* on the appeal of a Deputation from the Parks Preservation Society; and incorporated within the Park by the Victoria Park Act of 1872.

Thereupon the Parks Preservation Society, acting upon a suggestion of the present writer, addressed a communication to Her Majesty the Queen praying her to pay a special visit to the recently enlarged Park which bore her name. The memorial elicited a gracious reply, and on Wednesday, April 3rd, 1873, Her Majesty's promised visit was made. It was an auspicious day for East Londoners, who, in hundreds of thousands, lined on each side the entire route taken from the City by the Queen and her suite, and made demonstrations of loyalty which have never been exceeded in genuineness and spontaneity. Her Majesty made the circuit of Victoria Park and then returned to Buckingham Palace. In subsequently responding to the address presented to her on the occasion of her visit, the Queen, in making especial reference to the efforts—such as those for the creation and extension of parks and open spaces—made to promote the health and enjoyment of the poorer classes of the people, said that the subject was one that had "never ceased to occupy" her thoughts. Her Majesty added: "I thankfully acknowledge that while much remains to be done, real progress has been made during my reign in this direction; and I trust that in every succeeding year there will be seen a steady advance in those works which promote, not only the health and comfort, but the moral progress, of my people."

This special visit of the Queen to a London park, under circumstances connected with its enlargement for the benefit of

the crowded population around it, must be taken as illustrative of the deep interest which Her Majesty takes in the subject of parks and open spaces for the people. To give it the prominence it deserved, as the Queen's visit to Victoria Park was the only occasion on which the efforts of the defenders of open spaces had been publicly recognised by the Sovereign, the honour of knight- hood was conferred upon Mr. Charles Reed, who at the time of Her Majesty's visit was the senior member for the Borough of Hackney.

Of royal parks and gardens which though outside strictly metropolitan limits, are nevertheless within easy reach of Londoners, must be especially mentioned Richmond, Bushey and Petersham Parks, and Kew Gardens. The first named is nine miles in circumference and contains 2,357 acres. For its fine walks, its handsome trees, and the beautiful views which can be obtained from various parts of it, it may claim to take first rank amongst the parks around London. The area of Petersham Park is 110 acres. The magnificent and far-famed avenue, a mile in length, of horse-chestnuts, gives its especial and distinctive character to Bushey Park, whose area covers a space of 1,100 acres.

The cost of maintenance of the royal parks during the current year is estimated as follows by the Office of Works :—Hyde Park, Kensington Gardens, the Green and St. James's Parks, 40,023*l.* ; Regent's Park and Primrose Hill, 10,345*l.*; Victoria Park, 7,638*l.*; Battersea, 7,563*l.* ; Richmond and Petersham Parks, 2,891*l.* ; Greenwich, 2,635*l.*; Bushey, 2,283*l.*; and Kennington Park, 1,377*l.*

Kew Gardens, which under the admirable control of Sir Joseph Dalton Hooker and his able coadjutor, the assistant director, Mr. W. T. Thiselton Dyer, are, at the present time, in a state of the highest efficiency, forming an institution of which the English nation may be justly proud, deserve notice. The entire grounds—comprising the botanical gardens, the arboretum or pleasure grounds, the temperate and tropical greenhouses and fern-houses, the orchard, cape and begonia houses, the pinetum ; the tropical aquarium or water-lily house, the herbaceous ground, the Victoria tank, the stoves, the succulent house, the herbarium, the museum, and the other and almost multitudinous adjuncts of a great scientific establishment—cover an area of 345 acres.

The next group of open spaces to come within the present review are the Commons, or those open spaces in and around

London, over which the public have exercised from time immemorial certain common rights, or rights of "user," but which, owing to the greed or rapacity of sundry lords of manors and others have been made the objects of enclosure and spoliation. Against no other species of property have so many attacks been made. We have no space in this paper to go further back than the year 1865, when the subject of illegal enclosures of commons around the Metropolis, having been for some time prominently attracting public attention, a Select Committee of the House of Commons was appointed "to inquire into the best means of preserving for the public use, the forests, commons, and open spaces in and around the metropolis." The action of a body called "the Enclosure Commissioners of England and Wales," had had a good deal to do with the appointment of this Committee. These Commissioners were appointed to carry out the General Enclosure Act of 1845, and although this last-mentioned Act contained some clauses designed to protect the interests of the public who would be affected by the enclosures which might be made under the authority of the statute, by reciting that sufficient provision should be made, in the carrying out of any enclosure scheme, for the retention of open spaces for recreation ground, and for allotments for the labouring poor, the Commissioners in their unreflecting zeal for enclosure pure and simple, practically ignored the salutary provisions of the Act under whose powers they presumably exercised their functions.

In 1869, however, the House of Commons put a stop to the proceedings of the Enclosure Commissioners, and there was then an understanding that no Enclosure Bill should be assented to until after there had been an amendment of the General Enclosure Act of 1845. The projected amendment of that measure was effected by the Commons Act of 1876, passed on the proposal of the then Home Secretary, Mr. Cross. Meanwhile, both the suspension of the action of the Enclosure Commissioners, and the Commons Act of 1876 were anticipated, so far as London was concerned, by the Metropolitan Commons Act of 1866. This statute, resulting from the deliberations of the Select Committee of 1865 already referred to, provided that the Enclosure Commissioners should, in future, entertain no application for the enclosure of a metropolitan common, or of any part of one. Bu on the contrary, so far as metropolitan commons were concerned, the functions of these Commissioners as practically exercised by them prior to 1866 were reversed, for the custodians of commons

within the Metropolitan Police District, being, under this Act of 1866, the Metropolitan Board of Works, the last-named body were empowered to present a memorial to the Enclosure Commissioners with respect to any common within the already indicated area, whereupon the Commissioners were "to make inquiry and prepare a scheme for its management, which scheme was to be confirmed by Parliament;" so that the only power conferred under the Act upon the Commissioners, was the power of doing good and not evil.

About the time that the Select Committee of the House of Commons—appointed in 1865—was inquiring into the best means of preserving for the public use, the forests, commons, and open spaces in and around the Metropolis, an association called the Commons Preservation Society, was in process of formation. The work performed by this Society since its institution has been very valuable.

Another voluntary association must be added, with favourable mention, to the list of the independent bodies which have done very much to assist in the work of preserving the open spaces in and around London, namely, the Epping Forest Fund Committee, which, since 1871, has laboured assiduously—by means of public meetings and demonstrations, and in various other ways, to keep the Epping Forest question prominently under public notice. Workers, conspicuous amongst the earnest body of gentlemen, who have, so to speak, constituted the bone and sinew of the Epping Forest Fund, are Sir Antonio Brady, Mr. Frederick Young, J.P., who has already been mentioned in this paper, and Mr. W. G. Smith, the energetic and indefatigable Honorary Secretary of the "Fund" Committee.

Before proceeding to enumerate, with such brevity as may be necessary, the various Commons in and around the Metropolis, it will be first necessary to make it clear under what constituted authority the custody of these spaces has been placed by Parliament. Commons situated within the Metropolitan Police District, are, under the powers of the Metropolitan Commons Act of 1866, and various supplemental Acts passed since that year, placed under the guardianship and administration of the Metropolitan Board of Works. Though having a local habitation and a name which would appear to imply central metropolitan authority in regard to open spaces, the Corporation of the City of London has really no jurisdiction over Commons situated within the Metropolitan Police District. But beyond

that district it now has such jurisdiction by virtue of a private Act of Parliament obtained in the year 1878, and by the provisions of which it is constituted the guardian of all Commons, outside the police district, which do not lie beyond a radius of 25 miles of the Metropolis. Within this indicated area the Corporation is empowered to purchase any Commons or rights of common, to maintain or contribute to the maintenance of any litigation instituted for preventing the enclosure of such Commons, or to contribute to their regulation.

It will be convenient, perhaps, to indicate first the Commons placed under the charge of the Metropolitan Board of Works—referring, in the same category, to the various Acts under which they are controlled and administered. The Acts passed subsequently to the "Metropolitan Commons Act of 1866, 29 and 30 Vict., cap. 122," are mostly styled "Supplemental" to that Act, although some of them are specially named after the spaces to which they refer.

The "Metropolitan Commons Act 1878, 41 and 42 Vict., cap. 71," gives the Board power to purchase and hold, with a view to prevent the extinction of the rights of common, any saleable rights in common, or any tenement of a commoner to which rights of common are annexed. The "Metropolitan Commons Supplemental Act, 1871, 34 and 35 Vict., cap. 57," confirms a scheme prepared by the Enclosure Commissioners under the provisions of the Act of 1866, for the management of Blackheath, placed under the jurisdiction of the Board. Blackheath contains 267 acres, and it was fortunately obtained without any money payment for the extinction of manorial or other rights. The Board's expenditure on this Heath to the 30th September, 1879, was 6,160*l.* 17*s.* 2*d.* The "Metropolitan Commons Second Supplemental Act, 1871, 34 and 35 Vict., cap. 63," confirms a scheme of the Enclosure Commissioners for the management of Shepherd's Bush Common, which is placed under the jurisdiction of the Board. Shepherd's Bush Common contains 8 acres, and it was purchased by the extinction of the rights of the Ecclesiastical Commissioners on payment of a sum of 505*l.* On this Common 2,728*l.* 18*s.* 8*d.* had been expended to the 30th September, 1879, in draining, enclosing, planting, and otherwise improving. The "Metropolitan Commons Supplemental Act, 1872, 35 and 36 Vict., cap. 43," confirms a scheme of the Enclosure Commissioners for the management of the various pieces of ground called the Hackney Commons, which are now placed under the

jurisdiction of the Board. This group of commons consists of the following open spaces :—Hackney Downs, containing 50 acres ; London Fields, containing 27 acres ; Well Street (or Hackney) Common, containing 30 acres ; North Mill-Field, containing 29 acres ; South Mill-Field, 28 acres ; Clapton Common, 9¼ acres ; Stoke Newington Common, 5½ acres ; and some waste or common land at Dalston Lane and Grove Street, Hackney, containing together 1 acre. On these commons the Board expended to the 30th September, 1879, 4,431*l.* 2*s.* 1*d.* "The Metropolitan Commons Supplemental Act, 1873, 36 and 37 Vict., cap. 86," confirms a scheme of the Enclosure Commissioners for the management of Tooting Beck Common, the manorial rights over which the Board agreed to purchase for the sum of 10,200*l.*, which sum, however, has been increased by interest to the amount of 3,597*l.* 19*s.*, beyond the compensatory payment. But the Act authorises the Board to raise a sum of 20,000*l.* under its borrowing powers—and of this total amount, 18,800*l.* 0*s.* 8*d.* had been expended by the 30th September, 1879. The area of Tooting Beck Common is 144 acres. The adjoining Common of Tooting Graveney is placed also under the jurisdiction of the Metropolitan Board ; but this is done under one of the Board's miscellaneous Acts—the "Various Powers Act of 1875, 38 and 39 Vict., cap. 179." Here the lord's manorial rights were purchased for 3,000*l.*, and the Act also authorised the payment by the Board of a sum of 1,155*l.* towards expenses incurred by certain persons before the passing of the Act in maintaining the rights of the commoners. Altogether the Board had expended to the 30th September, 1879, a sum of 4,276*l.* 16*s.* 6*d.* on account of this common, which contains an area of 63 acres. The "Metropolitan Commons Supplemental Act, 1877, 40 and 41 Vict., cap. 201," confirms a scheme of the Enclosure Commissioners for the management of Clapham Common, for the manorial rights over which the Board agreed to pay 18,000*l.* This space is 220 acres in extent, and up to the 30th September, 1879, there had been expended on it, including the sum already named for compensation, 20,819*l.* 19*s.* 1*d.* A good deal of draining was necessary to put the ground into proper condition. Under the same Act Bostall Heath, a common 55 acres in extent, was placed under the control of the Board, who paid 5,500*l.* for the purchase of manorial rights claimed by Queen's College, Oxford. By the 30th September, 1879, the expenditure altogether on this open space, amounted to 6,131*l.* 3*s.* 11*d.*

The "Hampstead Heath Act, 1871, 34 and 35 Vict., cap. 77," confirms an arrangement made by the Metropolitan Board of Works with the Lord of the Manor of Hampstead for the purchase, for the sum of 45,000*l.*, of his rights over the Heath. The area thus secured by the Board for the recreation and enjoyment of the public covers an extent of 240 acres. Other claims for compensation were made by persons who alleged that they had copyhold rights over the Heath; but these claims were never pressed, and they fell through. The Heath had cost altogether since its acquisition by the Board 55,508*l.* 12*s.* 5*d.* to the 30th September, 1879. The "Wandsworth Common Act, 1871, 34 and 35 Vict., cap. 181," vests the Common in a body of conservators, one of whom is to be elected by the Metropolitan Board. The area of this common is 183 acres, and the Board has to pay to Earl Spencer, who is Lord of the Manor, an annual sum by way of compensation for his rights, of 250*l.* But the parishes of Wandsworth and Battersea have to defray the cost of maintenance by means of a joint rate. The "Plumstead Common Act, 1878, 41 and 42 Vict., cap. 145," empowers the Metropolitan Board to purchase the estate and interest of Queen's College, Oxford, in Plumstead Common and Shoulder-of-Mutton Green. For the latter it paid for the fee simple 500*l.*, for the former 10,000*l.*, also for the fee simple. As the Board have put no one in charge of Shoulder-of-Mutton Green owing to its small size—4 or 5 acres only—but have been content simply to fence it round and put up bye-laws—the outlay, including the price of the ground, was no more than 528*l.* 12*s.*, to the 30th September, 1879. The expenditure on Plumstead Common, however, to the same date, including the purchase money, was 11,489*l.* 12*s.* 9*d.*; but as the War Department uses a part of the common as a drilling ground for the troops, the Government pays for this privilege—which it first of all claimed on the ground of "user"—a sum of 4,000*l.* per annum. The area of Plumstead Common is 110 acres. The "Wormwood Scrubs Act, 1879, 42 and 43 Vict., cap. 160," vests in the Board the Common of that name, as well as certain land adjoining to be maintained as a place of public recreation, but subject, as in the case of Plumstead Common, to certain rights of "user" by the military authorities. The area of the common called Wormwood Scrubs is 135 acres; but an adjoining space of freehold land, covering an area of 59 acres, and acquired by the War Department at a cost of 25,615*l.*, has also been similarly handed over to the Metropolitan

Board, to drain and otherwise improve the land and devote it to the use and enjoyment of the public. This open space, however, is also subject to the rights of user of the military forces—so that the entire area available for the public, subject to the conditions already mentioned, contains 194 acres.

It will have been seen from what has been said, that considerable sums have been paid by the Metropolitan Board of Works for the rights of Lords of Manors over Commons in and around London within the area over which the Board has jurisdiction; and it has been contended that some, at least, of these payments have been unnecessary, inasmuch as over all the commons in question the commoners' right existed and the spaces could not have been enclosed by the Lords of the Manors; and that therefore it was not necessary in order to secure the use, for the commoners, of these spaces, to purchase the lords' rights. There are, however, it must be admitted, two sides to this question, and for the view of the Metropolitan Board of Works it may be said that the resort to legal proceedings which would probably have been instituted in most cases had the claims of the Lords of Manors not been amicably settled, would have cost the ratepayers of the Metropolis considerable sums of money, and would not in the end have left them so free as they now are to effect improvements and alterations in the metropolitan commons suited to the requirements of the vast population for whose enjoyment and recreation they are needed. There would at any rate have been the danger of continual disagreement whenever what might be done for the benefit of the commoners was supposed to conflict with the interests or the rights of the lords.

Whilst still dealing with the subject of the commons in and around London, brief mention must be made of the finest of them all, Epping Forest, now secured beyond all question for the permanent enjoyment of the vast population of the Metropolis. The Chancery proceedings, commenced in 1871 by the Corporation of London against persons who had been guilty of unlawful enclosures of parts of Epping Forest, the origination of the association called the Epping Forest Fund Committee, and the subsequent appointment, in the same year, of the Epping Forest Commission, whose first powers were acquired by the Epping Forest Act passed on the 21st August, 1871, may be said to mark the period of the commencement of the great struggle which, after protracted litigation and weary inquiry has finally terminated so successfully for the public. Both the Chancery

action of the Corporation and the inquiry of the Epping Forest Commission could only take cognizance of illegal enclosures which had been effected during the preceding twenty years, or between 1851 and the passing of the Epping Forest Act; and fortunately that period really included the most important and wholesale of the robberies of common land effected through the previous indifference of successive Governments and the supineness of the Legislature. It is, in fact, worthy of note that the enclosures made in Epping Forest since 1851, represented six times more land than the entire quantity which was enclosed during the preceding 250 years—namely from the year 1600, to the year 1851. Touching the enclosures made during this earlier period the Epping Forest Commission reported, that they were "small strips by the roadside, or if more important, the leave of the Forest Courts had been obtained, and in other cases of enclosure they were either abated by the Forest Courts or the offenders were fined." Of the proportion of enclosures at different periods the Commissioners further ascertained "that before the year 1600, but 6 acres of the Forest had been enclosed; that between the year 1600 and the year 1700, but 4 acres had been enclosed; that between the year 1700 and the year 1800, but 70 acres had been enclosed; and that up to about the year 1851, barely 600 acres had been enclosed; but that since that date over 3,600 acres have been enclosed!" This short statement speaks volumes for the greed, rapacity, and lawlessness of these modern times the "golden age" in the sense in which gold is sought at the expense of honesty. In 1851, there were about 7,000 acres remaining open of Epping Forest, so that in the 20 years which succeeded considerably more than half of the Forest was stolen! It may well be supposed that it was time for some one to interfere.

The decision of the Court of Chancery, pronounced in November, 1874, practically marked the conclusion of the struggle for the Forest, although the Epping Forest Commissioners continued their weary "Inquiry" much beyond that date. The judgment of the Master of the Rolls was to the effect that the defendants had "taken other people's property without their consent" and had "appropriated it to their own use." He further said: "As regards the bulk of the defendants they have been parties to a litigation in which they have endeavoured to support their title by a vast bulk of false evidence."

The finding of the Epping Forest Commission, made public in

the preliminary report of that body issued in 1875, substantially agrees with the verdict of the Court of Chancery pronounced in the preceding year. The Commissioners reported: "That over those parts of the waste within the regard of the forest over which your Majesty's rights have not been released or conveyed such rights still exist. That all enclosures within the regard of the forest made since August 21st, 1851, where your Majesty's rights have not been conveyed or released are unlawful as against your Majesty and the commoners; and that where your Majesty's rights have been conveyed or released enclosures within the regard of the forest made since August 21st, 1851, are unlawful as against the commoners. That the owners and occupiers of land and tenements within the regard of the forest, not being waste of the forest or enclosures from waste, have a right of common of pasture for commonable cattle within the forest, namely, horses, and neat beasts, *levant* and *couchant*, on their lands and tenements as aforesaid, as appurtenances thereto, on all the wastes of the forest, according to the assize and customs of the forest. That the present waste of the forest within the regard thereof, as ascertained by us, is 6,021 acres and 28¼ perches. Of this quantity 3,014 acres 1 rood 6¾ perches, are open waste and 3,006 acres 3 roods 21½ perches, are enclosed; that over 3,558 acres 1 rood 10¾ perches, your Majesty's forestal rights have been conveyed or released, and over 2,462 acres 3 roods 17½ perches, they still exist. That although the public have long wandered over the waste lands of Epping Forest without let or hindrance, we can find no legal right to such user established in law, but this user is a matter for consideration in the settlement of the scheme."

The Epping Forest Commissioners have never been "friendly" to the public interests, and their feeling is shown in the sentence last quoted. It is scarcely necessary, however, to remark that it is not essential to discover the *origin* of immemorial "user," for this user itself establishes a legal right if continued for a sufficient length of time. But Epping Forest is now secured to the public beyond the further possibility of danger by the Epping Forest Act of 1878, and the grand open space is placed under the control of the Corporation of London, who are appointed the Conservators, in conjunction with certain members of the old body of "Verderers." In giving, however, to the Corporation of London the high meed of praise which that public-spirited body deserves for the admirable service which, in this matter, it has

rendered to the metropolitan public it must not be forgotten how much the general or corporate action has been prompted and stimulated by the energy of individuals: and conspicuous amongst those who have initiated and energetically carried out the liberal-minded policy of the London Municipality are Mr. J. T. Bedford, and the City Solicitor, Sir T. J. Nelson.

From the Royal parks and commons in and around London we now come to the open spaces of various kinds which have been acquired by purchase or otherwise, and are placed some under the control of the Metropolitan Board of Works, others under that of the Corporation of London, whilst others still are placed either under the management of local "Conservators" or other bodies, or under no management at all. First may be enumerated those parks or other open spaces placed under the management and control of the Metropolitan Board of Works.

Finsbury Park was purchased by that Board at a cost of about 472*l.* per acre, the value of the freehold. In all 115 acres were acquired and the total cost of the property and compensations was 55,083*l.* Necessary works for "laying out" cost 40,246*l.* and the trees, shrubs, and planting, 4,710*l.* It was opened to the public on the 7th August, 1869, and the total outlay upon it, including the original purchase-money, &c., was to the 30th September, 1879, 117,692*l.* 1*s.* 4*d.* This park was acquired by the Board under the authority of the "Finsbury Park Act, 1857," 20 and 21 Vict., cap. 150. Southwark Park, of 63 acres, was also bought and laid out by the Board, and though it was really opened to the public only a short time before the opening of Finsbury Park, namely on the 19th June, 1869, the Act under which the purchase was made was not passed until 1864, being the 27 Vict., cap. 4. The cost of the freehold land for this park was 911*l.* per acre, and the entire cost incurred in connection with it to the 30th September, 1879, was 117,668*l.* 18*s.* 5*d.*

Leicester Square, turned into a public garden at the expense of Mr. Albert Grant, was handed over to the Metropolitan Board of Works to be maintained as a public garden, on the 2nd July, 1874. The outlay on this space was nearly 30,000*l.* but the Board's expenditure on it from 1874 to the 30th September, 1879, was only 454*l.* Some vacant spaces of land on the Victoria, Albert, and Chelsea Embankments, and also some land near Whitehall Place, making altogether some 13 acres, have also been laid out as flower gardens.

Of other gardens and spaces in or around London, to the cost

of some of which the Metropolitan Board has contributed, but which, though mostly secured to the public by Acts of Parliament, or in other ways, are not placed under the control of that body, the following may be mentioned: Barnes Common contains about 100 acres, and is under the management of conservators, who were appointed under the powers of the Metropolitan Commons Supplemental Act of 1876. Camberwell Green, a small space of 2½ acres only, has been laid out as a garden, and is maintained by the Vestry, towards whose expenses in the matter the Metropolitan Board contributed 300*l.* Goose Green, 6¼ acres in extent, is also maintained and managed by the Vestry of Camberwell. Hayes Common is secured to the public by the Metropolitan Commons Supplemental Act of 1869. It embraces an area of 2[illegible] acres. Islington Green, which was copyhold land, was given to the inhabitants for public use, and is maintained by the Vestry of the parish. Lismore Circus has been laid out as a public garden by the Vestry of St. Pancras, but the Metropolitan Board contributed 800*l.* towards the expenses. Nunhead Green, an acre and-a-half in size, is kept up for public use by the Vestry of Camberwell; and Paddington Green, an acre only, is similarly maintained by the Vestry of the parish. At Peckham Rye, is a space 64 acres in extent, maintained by the Camberwell Vestry. The Poplar Recreation Ground, maintained by the District Board of Works as a public garden, is 3½ acres in extent. Towards the cost of laying out this ground the Metropolitan Board contributed 6,000*l.* The old burying ground of St. Pancras and St. Giles covers an area of more than 7 acres, and was, under the authority of the Vestry of St. Pancras Act, 1875, made into a public garden at a cost of 7,710*l.* 15*s.* 8*d.* towards which sum the Metropolitan Board contributed 2,971*l.* Stepney Green, by consent of the Lord of the Manor of Stepney, was on the 10th of August, 1872, handed over to the Vestry of Mile End to maintain in perpetuity. But the Metropolitan Board incurred the first cost of laying out the ground, amounting to a sum of 3,562*l.* 2*s.* Stoke Newington Green was cleared of the rights claimed over it by the Lord of the Manor in consideration of the payment to him of 150*l.* The Metropolitan Board contributed half this amount and also incurred the expense of fencing-in the Green and laying it out, at a cost altogether of 1,090*l.* 10*s.* 5*d.* handing it over in the month of June, 1876, to the Vestry of Islington, to maintain in perpetuity as a public garden. By the Wimbledon and Putney Commons Act, 1871, Wimbledon

Common, Wimbledon Green, Putney Heath, and Putney Lower Common are vested in Conservators to maintain for the enjoyment of the public, a rate for their maintenance being levied on the surrounding property within a certain radius. These spaces contain altogether 1,412 acres.

Amongst other spaces which, though not yet definitely secured to the public by Acts of Parliament, are still unappropriated and will in all probability ere long be placed under some definite scheme of management, are the following, one or two of which are, in fact the subject of schemes, which are under consideration, for their preservation and maintenance for public use ; Hackney Marshes, containing 345 acres ; Fortune Green, West End Green, near Hampstead, Old Oak Common, containing 104 acres; Brook Green, Eel Brook Common, Parson's Green, Garrett Green, Streatham Common, containing 66 acres ; Eltham Green, Woolwich Common, and Kidbrooke Common, a space of 40 acres.

West Ham Park was purchased in July, 1874, for the sum of 25,000*l.*, the Corporation of London contributing 10,000*l.* towards that sum, and the inhabitants of the district the balance of the purchase-money. The area of this park is about 76 acres and the Corporation have paid a further sum of 7,344*l.* in addition to the first contribution of 10,000*l.* for putting the park into a proper condition for the enjoyment of the public. The annual cost of the administration of West Ham Park is about 450*l.*, and this expense is also borne by the Corporation. Not long since, the last-named body also incurred the cost of turning into a public garden the enclosure of St. Paul's Churchyard, which is now a bright spot in the heart of the City of London. Under the "Gardens in Towns Protection Act, 1863, 26 Vict., cap. 13," the Metropolitan Board of Works may deal with any garden or ornamental ground in the Metropolis (except in the City of London) set apart for the use of the inhabitants, and not kept in proper order ; and the Board may place any such space in the hands of a Committee of the rated inhabitants to be kept as a garden or ornamental ground. Should the inhabitants not accept the charge the Metropolitan Board may place such a garden under the Vestry or District Board ; and further, by the "Metropolis Open Spaces Act, 1877, 40 and 41 Vict. cap. 35," the Board is authorised to acquire and hold open spaces, such as gardens in squares for the benefit of the public.

One of the latest purchases, and certainly the most valuable

acquisition made within the last two or three years in the interest of the metropolitan public, is that of the magnificent tract of woodland, known as Burnham Beeches, a description of which has recently been published.* This beautiful remnant of wild forest was secured by the Corporation of London, acting upon a suggestion made to the Court of Common Council in a letter (dated the 25th June, 1879) by the present writer. At a meeting of the Common Council held the following day, this letter was laid before the Court by the Lord Mayor, to whom it had been formally addressed. It was read by the Town Clerk, and referred, on the motion of Sir John Bennett, seconded by Mr. J. T. Bedford, to the Coal and Corn and Finance Committee for consideration and report. The Committee adjourned to the Beeches (which lie just within the 25-mile radius within which the Corporation are empowered to purchase open spaces), and, on their return, reported in favour of the proposition to acquire this delightful piece of woodland for the benefit of the public. The Beeches and East Burnham Common together cover an area of 374 acres, and they have now been secured for ever by the Corporation of London for a sum of about 9,000*l.*; and for all time this beautiful recreation ground will constitute one of the most delightful resorts of hard-working Londoners.

It may fairly be said that never before were municipal authorities and the inhabitants generally of our great cities and towns so fully alive, as they are at this moment to the vast importance on moral, social, and sanitary grounds of preserving and extending open spaces wherever possible; and it cannot be denied that much—very much—of this desirable state of feeling is due to the earnest and persistent efforts of individuals who at a time when the public mind was indifferent to the subject, strove in season and out of season, to impress on society and the world the vital urgency of their pleas for more air and more space, more trees and flowers, more of God's sunshine—more, in short, of the beauty of Nature in the midst of our great modern wildernesses of bricks and mortar.

FRANCIS GEORGE HEATH.

* "Burnham Beeches." By Francis George Heath. London: Sampson Low and Co.

THE LONDON HOSPITALS AND THEIR MANAGEMENT.

CHRISTIANITY lays claim to the foundation of the first hospitals for the reception of the sick and suffering as one of the distinguishing proofs of its superiority to all other creeds from the purely humanitarian standpoint, and even those who deny its title to supremacy among the religions of the world are ready to credit its followers with a single and unselfish desire to relieve the misery of their fellow-creatures. It would indeed be difficult to deny that the parable of the Good Samaritan contains what we may term the germ of the hospital idea, for the picture presents not merely the act of mercy in the immediate attention to the wounded man, but the subsequent care for him which completes the operation. When the effort of the individual which was thus set forth as one of the primary duties of Christianity was merged in or extended to the combined action which naturally led to the establishment of a hospital it is difficult to say, but we have a distinct reference to the provision of hospitals by the Fathers of the Primitive Church, and the hospital of St. John at Jerusalem, founded in 1112, with its accommodation for 2,000 inmates, and an infirmary for the sick, was probably one of the first general hospitals. London itself can boast of an equally ancient institution, which would now be classed as a special hospital, in the home for lepers founded in St. Giles's-in-the-Fields, in 1118, by Queen Matilda, wife of Henry I, on ground not far from the site of the present church of the same name. This hospital, which also partook of the character of a conventual institution, was dissolved by Henry VIII. In the year 1122, the first *bonâ fide* hospital in the present sense of the word was founded in London in connection with the Priory of St. Bartholomew in Smithfield, and remains to this day as one of the noblest institutions of its class, and there are now no fewer than 16 of these homes for the sick and suffering, the last formed being the North West London Hospital in Kentish Town. By a somewhat curious coincidence, the London hospitals seem to have been founded in sets, long periods elapsing in each case between the establishment of the several groups. Thus St. Bartholomew's and St. Thomas's came first between 1547 and 1553, after which no new medical charity was promoted until 1719, when a philanthropic impulse seemed once more to be at

work, and in the succeeding 25 years no fewer than 4 hospitals, Guy's, St. George's, the London, and the Middlesex were established. Eighty years next intervened before the third movement was made, and then within another 20 years, between 1818 and 1839, 5 hospitals were founded: the Charing Cross, Royal Free, University, Metropolitan Free, and King's College. The year of the first Great Exhibition witnessed the opening of St. Mary's Hospital, Paddington, which was followed after 5 years by the establishment of the Great Northern and West London.

The following table shows the date of foundation of each of the general hospitals of the metropolis :—

St. Bartholomew's	1547	Royal Free	1828
St. Thomas's	1553	North London or University	1833
Westminster	1719	Metropolitan Free	1836
Guy's	1721	King's College	1839
St. George's	1733	St. Mary's, Paddington	1851
London	1740	Great Northern	1856
Middlesex	1745	West London	1856
Charing Cross	1818	North-West London	1878

The hospitals are spread fairly over the most crowded parts of the metropolis, and the local hospitals in the suburbs which are now being gradually supplied, will, it is obvious, prove a great boon to the residents to whom the distance even of a few miles is a serious matter. Viewed in their secondary aspect as Schools of Medicine it would be undesirable to remove the greater hospitals to the suburbs, but it seems to be a wise movement to place in each district one or more hospitals for the treatment of ordinary cases, and for dealing with out-patients. The poor dwellers in the immediate vicinity of the greater hospitals have long enjoyed the advantage, not shared by persons living in the outlying neighbourhoods, of receiving visits at their homes from members of the medical staff, and by the establishment of suburban hospitals it will be possible to extend this much valued system, while there must always be cases of emergency in which the possibility of immediate surgical aid may involve the saving of a life or limb.

Looking at the history and management of the general hospitals of London, the first in order of foundation is *St. Bartholomew's*, originally established in 1122 by Rahere or Rayer, the minstrel or jester of Henry I, in connection with the priory of St. Bartholomew, which he had founded 20 years before. It was declared to be set up "for the continued relief and help of an hundred sore and diseased," but notwithstanding this

admirable object, its revenues narrowly escaped the grasp of the eighth Henry, who only agreed to spare it on the petition of Sir Thomas Gresham, the then Lord Mayor. The King ultimately handed the hospital over to the civic authorities, and in 1547 refounded it by Royal Charter. In 1557, at a court of the Governors, it was resolved to unite St. Bartholomew's with the other royal hospitals, Christ's, St. Thomas's, Bridewell, and Bethlehem, which, although devoted to very diverse objects, were henceforth known as "the Royal Hospitals of the City of London, under the pious care of the Right Honourable the Lord Mayor, Aldermen, and Governors thereof." From that date until 1782 these institutions were managed by one general board, but in that year an Act was passed, 22 Geo. III., c. 77, placing each under separate management as far as its internal arrangements were concerned, except Bridewell and Bethlehem, which were to have the same board, although they were still to be under the common care of the Corporation. The president of St. Bartholomew's was, until 1854, the Lord Mayor or an Alderman who had passed the Chair; but the election of Mr. Cubitt, when no longer a member of the Civic Court, made a break in the traditional rule. From the time of its establishment, the hospital attracted to its staff medical men of the highest eminence, and Harvey, the discoverer of the circulation of the blood, was its physician for many years; while Abernethy, who established the system of lectures which has made this and other hospitals so invaluable as schools of medicine, was its assistant surgeon. The fame of the institution drew to its aid the professors of other arts than that of Æsculapius; and the painting of the Great Staircase by Hogarth is a work which deserves to rank with Handel's efforts to assist the Foundling Hospital by his performances, and by the erection of the organ to which he so largely contributed. The income available for hospital purposes in the year 1879, after the cost of managing the estates and other payments amounting to 8,049*l.*, was 69,688*l.*, and so nearly did the expenditure reach that sum that only 180*l.* remained. The accounts, which are audited by six gentlemen well known in the city of London, and are signed by four "almoners" also connected with the city, are subjected to a professional audit by a public accountant. The stock reported to be standing to the credit of the hospital on the 31st December, 1879, amounted to 67,172*l.* in the names of the trustees, and 28,826*l.* in the name of the Paymaster-General. As regards the

expenditure, it may be of interest to state that out of the total of 69,508*l.*, 10,059*l.*, or one-seventh, was paid for diet for the poor patients; 6,955*l.* for drugs, chemicals, wines, spirits, and instruments; only 3,109*l.* to medical officers, and 2,625*l.* to civil officers; sisters, wardnurses, etc., 5,533*l.*; and 17,482*l.* for "extra expenditure, of which 15,400*l.* was for new museum, library, etc.," so that the actual maintenance of the patients cost 50,670*l.* Against this outlay we have to set the recital of work done. The hospital contains 676 beds; 400 for surgical cases; 26 for patients suffering from diseases of the eye; and 250 for medical cases and diseases peculiar to women. Each ward is presided over by a "sister" with attendant nurses, the nursing staff numbering in all about 120. There are, in addition to the usual body of medical officers, 10 resident officers always in attendance, viz.: 4 house surgeons, 4 house physicians, 1 ophthalmic house surgeon, and an obstetric assistant. Ordinary cases of disease are admitted on any day except Sunday, between 9 and 10 a.m., and accidents and other urgent cases at all hours. The number of governors of the hospital exceeds 300, the qualification being a donation of 100*l.* or of 50*l.* if nominated. The best mode of enabling the reader to judge of the work actually done, will be to give a summary of the official statement for the year ended 31st December, 1879, corresponding to the financial details already quoted. The total number of in-patients who passed through the hospital for long or short periods during the twelve months was 6,592, the average number permanently in the wards being about 500. The army of ordinary out-patients numbered 19,071, but in addition to these there were 140,851 casualty patients—a standing proof of the importance of possessing a hospital like this with an adequate medical and surgical staff always available in the midst of a vast working population,—and 1,062 women (only 9 of whom died) were attended in their confinements. This brings the total number of individuals treated or advised by the medical officers up to 167,576. Fortunately the hospital possesses a Convalescent Home at Highgate—thanks in a great measure to the liberality of Alderman Sir Sidney Waterlow, Bart., M.P., and to this institution, which accommodates 34 male patients, 347 patients were sent, 41 being admitted into other homes of the same character. It also has a Samaritan Fund, from which 446 patients received money grants on leaving the hospital; 169 were provided with clothing; 52 received money and clothing; and 309 were fitted with artificial limbs

or surgical instruments. Such is the marvellous growth of the work begun by Rahere, and aided by liberal benefactors, like Dr. Radcliffe, who left 500*l.* a year, "towards mending the diet," and 100*l.* a year for purchase of linen.

St. Thomas's Hospital, which stands second in date of foundation, also has a history of no slight interest, and like St. Bartholomew's originally sprang from a religious foundation. According to Stow the Canons of St. Mary Overie (now better known as St. Saviour's, Southwark) built a hospital for the celebration of Divine Service, their monastery having been burnt in 1207, and this Hospital was in 1215 removed to Bermondsey by Peter de la Roche, Bishop of Winchester. Whether it was named, as Stow says, after St. Thomas the Apostle, or, as seems to be better proved, after St. Thomas à Beckett, the pilgrims to whose shrine must have passed the hospital door on their way to the Tabard Inn, is a matter of little moment, for its monastic character was destined to be swept away by Henry VIII, from whom the citizens of London purchased some of its landed estates. Henry intended to re-establish it as a hospital for lame, wounded, and diseased soldiers, but he died before he fulfilled his design, and in 1552 the Lord Mayor and Citizens, with the sanction of Edward VI, constituted themselves governors of St. Thomas's or as it was then termed "the King's Hospital." In 1553 a second charter included it among the five Royal Hospitals already named, and re-designated it as the Hospital of St. Thomas the Apostle. Among the subsequent benefactors was Mr. Guy, the founder of the neighbouring hospital, who erected three wards at his own charge. The first use of the hospital as a medical school was in 1561, when "an apprentice was admitted." The surgeons by a rule of 1703 were allowed three "cubbs," as the dressers were originally termed, and lectures were first given in 1723, among the more famous lecturers in after years being Sir Astley Cooper. From its foundation down to 1862 the hospital occupied the original site on the south side of London Bridge, but in that year it was removed to temporary buildings on the site of the Surrey Gardens, which were occupied until September, 1871, when patients were admitted to the new hospital at Westminster Bridge, opened in that year by the Queen, who had laid the foundation stone in 1868. The original building contained 500 beds; the new hospital contains 572. The hospital, which was very costly, is built on the block system, in imitation of the Great French Hospital of Lariboisière, with the

exception that instead of being arranged on either side of a central court the blocks are extended in a continuous line. The architectural plan provided corridors running the whole length of the hospital, connecting the several blocks of wards and pavilions. Each ward as a rule affords accommodation for 28 beds at distances of eight feet from centre to centre with a cubic capacity for each patient of 1,800 feet, and the windows are arranged alternately with the beds at a level which enables the patients to look out. The lights at the ends of the wards not only add to their cheerfulness but form an exit to the external balconies looking over the river, on which the patients are placed in fine weather. The sanitary plans appear to present every safeguard, the closets, lavatories and bath rooms being projected from the main building and connected with shoots for linen and dust communicating with a receiving room in the basement for external removal. The building also includes the most complete provision for the medical school, which still ranks among the first in Europe; and second only to its importance as a school of surgery is its school of nursing, established in conjunction with the committee of the Nightingale Fund for Educating Women as Hospital Nurses. The work done by the hospital may be gathered from the summary for the year 1879; when the number of in-patients was 3,317; of out-patients 18,138; casualties 43,466, and women attended in confinements 2,024. The average daily number of in-patients was 351, the mean length of residence being 34½ days. The total number of separate attendances made by out-patients at the hospital during the year was 120,350. The annual income averages about 39,000*l.*, and the qualification for a governor is 50*l.*, subject to election by the General Court of Governors.

When we leave St. Bartholomew's and St. Thomas's Hospitals we come upon new ground and reach the institutions which are not only of more recent origin but which instead of growing out of the religious houses of past ages are the fruits of private benevolence and of the efforts of individuals. *Westminster Hospital*, founded in 1719, the first institution of this class, took its rise at a meeting held on the 14th of January, 1715, at St. Dunstan's Coffee House, Fleet Street, where a number of gentlemen assembled periodically for charitable purposes. After nearly five years work in a house in Bird Cage Walk, used as an institution for the administration of relief, the hospital was opened for in-patients with thirty beds, and in 1724, after only nine years

existence, it opened wards in Chapel Street with sixty beds. In 1733 there was a third removal to James Street, where it remained for 101 years, not however without a protest from a large party of the governors who wished to transfer it to Lanesborough House, Hyde Park Corner, whither they ultimately seceded with a portion of the staff and established St. George's Hospital. The building now used for the Westminster Hospital was first occupied by the patients in 1834, and a medical school was established in the neighbourhood in the same year, and in 1849 was brought into connection with the hospital. By recent alterations and additions the hospital has now 200 beds and separate departments for special diseases. Here again we will take the work of the last completed year as the basis for our deductions as to the usefulness of the institution, and we find that in 1879 there were 1,842 in-patients, the number of beds daily occupied being 135. The number of out-patients was 16,554. The income for the year was 11,626*l.*; but unfortunately this is not permanent income, as 5,000*l.* was received from legacies, and as the expenditure was 464*l.* more than the receipts it proves that the voluntary system unless built up on a considerable foundation of funded property, is a precarious means of maintenance. The nursing at this hospital is supplied by a staff from the Westminster Training School and Home for Nurses. A Samaritan Fund connected with the hospital, with a modest income of less than 200*l.*, provides for the transfer of some of the convalescent patients to the Sea Bathing Infirmary at Margate.

From the result of the united efforts of a few earnest philanthropists, as seen in the successful establishment of the Westminster Hospital, we turn next to an institution founded by the liberality of a single citizen who placed it for ever in an independent position. *Guy's Hospital*, named after Thomas Guy, at whose sole cost and charges it was founded in 1721, has a special interest for all who are connected with the publishing trade; for Thomas Guy, after an apprenticeship to Mr. John Clarke, became in 1668 a freeman of the City of London and of the Stationers' Company and set up in business with a capital of 200*l.* "at the little corner house of Lombard Street and Cornhill." His trading flourished; five years later he became a liveryman of the Stationers' Company, and in due time he was chosen Sheriff of London, although he paid the fine and declined to serve. He entered the House of Commons as Member for Tamworth in 1695, and sat in all the Parliaments from the third year of William III down

to the first of Queen Anne. His first philanthropic efforts were directed towards obtaining the release of insolvent debtors from prison and re-establishing them in business, and he also, as already stated, built three wards at St. Thomas's Hospital, of which he was a governor. Successful investments in South Sea Stock added to his wealth, and on ground leased from St. Thomas's Hospital he commenced to build the institution ever since known by his name, which was opened on 6th January, 1725, ten days after its founder's death on 27th December, 1724. Subsequently a sum of 200,000*l.* was given for the extension of the buildings by Mr. Hunt. One of the special features of the hospital is its Lunatic House built in 1774, in accordance with Guy's will. The school of medicine and surgery was formally commenced in 1769, the pupils of St. Thomas's and Guy's being permitted to attend the lectures and practice in both institutions, which became known as "The United Hospitals," although in other respects they remained separate and distinct. For admission or treatment no governors' letters are necessary. Cases are received on Wednesdays at 10 a.m., and the worst cases are taken in as far as there are empty beds. Out-patients are seen daily. The income of the hospital derived mainly from landed property is 50,000*l.* The annual number of in-patients is 5,000 and of out-patients 75,000. The average cost of each bed is about 40*l.* per annum. The nursing at Guy's has been entrusted by the governors to sisters acting under a matron, and having in their turn a regular staff of hospital nurses to assist them. Owing to certain unfortunate cases, in one of which a jury found a nurse guilty of manslaughter, a conflict has arisen between the medical staff and the governors, the medical officers contending that too much independent power is placed in the hands of the sisters and nurses, to the injury of the patients who are, they allege, practically removed from the undivided and responsible control of the physician or surgeon. At the time of writing, the controversy between the governors and the medical men is still proceeding and considerable public feeling has been excited on the question.

The origin of *St. George's Hospital*, which was founded in 1733, has already been mentioned, the seceders from Westminster Hospital at a meeting on 19th October, 1733, resolving to model the new institution after St. Thomas's. Public support and favour seem to have been readily accorded to the new scheme, Dr. Richard Meade and Sir Hans Sloane, the most eminent

medical men of the day, giving it their sanction, and on 1st January, 1734, the hospital was opened at Lanesborough House, Hyde Park Corner, which was at that time regarded as the point of demarcation between town and country. The hospital opened with 30 beds; but this number was soon increased to 60, and in 1735, the subscriptions being sufficient to provide for 100 more than the house would contain, steps were taken to secure new houses, and ultimately the hospital was rebuilt by Mr. Wilkins, the architect of University College and the National Gallery. In 1834, an act of incorporation was secured from Parliament. As a school of medicine St. George's Hospital has now taken a high place, the complete establishment of the school dating back to 1831. The hospital possesses, in one respect, an advantage over other hospitals in its Convalescent Institution at Wimbledon, established and endowed out of a legacy of 150,000*l.* from Mr. Atkinson Morley, proprietor of the Burlington Hotel in Cork Street. Among the eminent men who took part in the early work at St. George's were Sir Cæsar Hawkins, Bart.; John Hunter, surgeon to George III and Surgeon-General to the Army, who died within the walls of the hospital on 16th October, 1793; and Sir Benjamin Brodie. Looking at the work done by the hospital, we find that in 1879, 3,789 patients were admitted to the wards, the daily average of in-patients being 318, and the mean period of residence in the hospital, 28 days. The number of out-patients in the year was 15,237, including 470 women attended for confinements at their own homes. Special care is stated to be now taken at this hospital to exclude from participation in its benefits persons who are not proper objects of relief. The ordinary expenditure for the year was 24,696*l.* and the total income 24,675*l.*; the average cost of each bed actually occupied being 77*l.* 9*s.* per annum. All out-patients are admitted free and on every day in the week, but in-patients require a contributor's recommendation. The hospital has a Samaritan Fund, which in the year 1879 afforded aid in money to 203 patients on leaving the hospital, and instruments, such as trusses, etc., to 422. The Atkinson Morley Convalescent Hospital received 720 patients during the year. Its income chiefly from dividends on the founder's legacy was 4,491*l.* and the expenditure 4,307*l.*

The *London Hospital*, Whitechapel, instituted in November, 1740, has from the first commanded a large amount of public sympathy, the poverty of the district in which it stands with a

population of about a million, and its proximity to the docks and other great centres of labour, where accidents are of frequent occurrence, giving it a just claim to support. Although not nominally a free institution it is so in effect, nearly three-fourths of the in-patients being received without subscribers' orders, the urgency of the case being the only point considered. In its original form, the hospital was styled the London Infirmary, being carried on with 136 beds, in four houses leased by the Committee in Prescott Street, Goodman's Fields; and it was not until 1759 that the institution was housed within its own walls, and even then it was only possible to fit up 130 beds, eleven wards remaining unfurnished through lack of funds. Efforts were made from time to time to add to the accommodation, and in 1840, the centenary of the foundation was marked by a special collection which reached 12,000*l.*; a part of the extension was then made, taking the form of a special department for Jewish patients. In 1864, the help of the Princess of Wales was secured; 34,000*l.* was raised, and the Alexandra Wing commenced. This movement, though successful, failed to increase the capacity of the institution to the extent really required, and in 1873 it was resolved to raise a special sum of 100,000*l.*, the amount actually received being 89,405*l.* The new building then erected, which was opened by the Queen on 7th March, 1876, was termed the Grocers' Company's Wing, in recognition of the munificent gift of 20,000*l.* from the old civic guild towards its cost. Her Majesty's visit offered a suggestive opportunity for yet another effort to bring the number of beds up to the needs of the applicants for admission, and the Queen's Fund reached a sum of 23,938*l.* 8*s.* 7*d.* The readiness with which these numerous appeals were responded to afforded the best possible guarantee of the confidence of the public in the management of the institution which now numbers 790 beds. The extent to which it is used is evidenced by the figures for the year 1879, which show that 5,811 in-patients were admitted, 1,569 on the recommendation of governors, and 4,242 on application; 2,008 of the latter being accident cases. The daily average of beds occupied was 556, and the mean period for which each patient remained was 35 days. The number of out-patients in the twelve months was 47,998, of whom 16,256 were recommended, and 31,742 (including 5,871 accidents), were treated on application. The hospital is not only one of the noblest institutions of the kind in this country, but it

a lso enjoys the distinction of doing the largest amount of work at the lowest cost. Several efforts have been made to provide an adequate endowment, about 74,000*l.* being subscribed for this purpose in 1878 and the succeeding year, while the People's Subscription Fund, dating back ten years earlier, and intended to form a local source of income for the hospital, has produced in the twelve years 12,849*l.* The nursing requirements, which form the *crux* at so many institutions, have been met here by the establishment of a Training Home for Sisters and Nurses within the premises of the hospital, under the immediate supervision of the matron, and the system, it is said, works well, and has proved of the highest value to the patients. The House Governor, a layman, is responsible to the House Committee for the management of the hospital, and the charge of the patients is entrusted to the medical officers. The financial accounts, which are drawn up with great clearness, show an annual income from assured sources of only 13,276*l.*; the casual income last year reaching almost the same sum, viz., 13,860*l.* The ordinary liabilities of the year amounted to 39,535*l.*, and are very unlikely to fall below it, so that the necessity of doubling the assured income is obvious. In its work as a medical school, the hospital has had a high repute from the earliest period of its history, and the college, as it is now termed, is established in its own buildings on an admirable basis, the management although absolutely distinct from the hospital, being in full harmony with it. The London Hospital has its Samaritan Society, which was instituted in the year 1791 at the suggestion of the late Sir William Blizard. The main object of the society is to send patients from the hospital to convalescent homes, between six and seven hundred cases being thus provided for every year, while many other necessitous patients are assisted with cash and in other ways. The income in 1879 was 1,623*l.*

We now reach the last of the group of five hospitals established between 1719 and 1745. The *Middlesex Hospital* was instituted in the latter year for sick and lame patients, in Windmill Street, Tottenham Court Road, and two years later a lying-in ward was opened for married women. These premises proved so little suited for the purpose that an effort was made to build a new hospital on what were then known as Marylebone Fields, on a site obtained at a nominal ground rent from Mr. Charles Berners, whose name is perpetuated in the adjacent Berners Street. The then Earl of Northumberland (afterwards Duke) laid the

first stone of the present building on 15th May, 1755, and to his successors, as to himself, the charity has been indebted for many munificent contributions. One of the special features of the institution is its Cancer Department, specially endowed by Mr. Samuel Whitbread, and about thirty-five patients with this melancholy disease are always under treatment. An interesting episode in the history of the hospital occurred during the French Revolution, when several of its wards were used as an asylum for the refugees. The number of in-patients received during the year 1879 was 2,634, of whom 468 were admitted with letters from subscribers, and 2,166 as urgent cases, the daily average of in-patients being 252. The out-patients during the same period numbered 27,417, the lying-in cases, which were formerly taken into the hospital, being treated at the homes of the women. The cost of the maintenance of the hospital amounted to 23,668*l.*, and as the receipts from all sources only reached 19,037*l.*, the Committee were compelled to reduce their capital by the sale of stock, which involves of course a further reduction of income for the ensuing year. The nursing is undertaken by a staff of sisters and trained nurses, for whose maintenance when disabled, as also for pensions for those worn out in the hospital service, a special fund has been established. The medical school in connection with the hospital has been in operation since the year 1835, and in the following year the hospital obtained a charter of incorporation.

From 1745 to 1818, we find no addition to the General Hospitals of the metropolis, but in that year the *Charing Cross Hospital*, now one of the most useful institutions of its kind, was established expressly for the relief of the sick poor, a voucher as to the inability of each applicant for admission to obtain medical aid being asked for from the subscribers, except in cases of accident, which are immediately admitted. In the first fifteen years of its existence the institution was a dispensary rather than a hospital, and in this form from 1818 to 1833 it afforded relief to 36,427 patients, at a cost of 6,886*l.* From the time of its establishment as a hospital in 1834 down to the present time it has afforded relief to a vast multitude, both of out and in-patients ; of the former 638,597, and of the latter 51,472, giving a total of 690,069. As a proof of the importance of these great hospitals as local institutions, it is worthy of note that out of these 690,069 persons treated at Charing Cross, 192,462 were residents in the parish of St. Martin-in-the-Fields,

in which the hospital stands, while 32,128 came from St. Paul, Covent Garden ; 51,599 from St. Giles's ; 40,287 from St. Anne's, Soho ; showing that a proportion of about half the total patients are people living within a radius of two miles from the building ; in fact only 184,605, or less than one-third, came from the environs of London or more remote parts of the country. Such a fact—and the same may be said of the majority of these institutions—proves how completely they fulfil what is in the opinion of many of their supporters their chief function in affording medical advice and relief to the poor of the neighbourhood in which they stand, whose houses, apart from all question as to their poverty, are utterly unfitted for the treatment of any serious disease. During 1879, the number of in-patients was 1,648, and of out-patients 16,197, out of which 5,297 were cases of emergency. The expenditure of the year was 11,391*l.* 16*s.* 10*d.* The average cost of each bed constantly occupied during the year was 71*l.* 11*s.* 8½*d.*

Coming next in order to the hospitals founded during the present century, the first of the group is the *Royal Free Hospital*, Gray's Inn Road, which was originally established in 1828, in Greville Street, Hatton Garden, by the late Dr. W. Marsden. It has its own special claim to consideration in the history of the medical charities of the metropolis as the first hospital founded for the immediate admission of strangers when suffering from disease or injury. The story of its origin tells us that a London Surgeon, Dr. William Marsden, having seen in the winter of 1827 a poor destitute girl, under eighteen years of age, lying on the steps of St. Andrew's, Holborn, after midnight, literally perishing from disease and starvation, and knowing that in the existing institutions admission was only obtainable on prescribed days and by subscribers' orders, determined to set about founding a hospital where destitution and disease should be the only conditions of reception. On this principle the Royal Free Hospital was opened, and Sir Robert Peel secured for it the patronage of George the Fourth. In the cholera epidemic of 1832, this hospital stood alone in opening its doors to the sufferers, and in 1849 and 1854 the same course was taken. The Gray's Inn Road premises, where the hospital now stands, were bought in 1842, and subsequently the freehold was purchased. The hospital, including the Sussex wing, raised as a memorial to the Duke of Sussex, contains 150 beds, and during the year 1879 the daily average of patients in the wards was 97, the total

number admitted during the year being 1,320. The number of out-patients who received advice and medicine during the same period was 26,644. As might naturally have been expected, the number of persons applying for treatment as out-patients became so enormous that it was found to be absolutely necessary to adopt some plan to save the medical officers from being literally overtaxed, and the rule now in force is only to admit thirty new out-patients every day on the medical side, and twenty-five on the surgical. The persons to be seen are partly selected by the senior medical officer as being the worst cases, and partly by priority of attendance. The receipts for the year 1879 were 32,507*l.*, but of this 19,500*l.* was from a single legacy. The total ordinary expenditure of the year was 8,601*l.* The nursing in the hospital is undertaken by the British Nursing Association, under the direction of the lady superintendent of the association. A special feature in the management of the hospital as a school of medicine is the admission of students from the London School of Medicine for women, twenty of whom are in attendance. Among the minor arrangements connected with this hospital special mention must be made of the thoughtful kindness of the ladies of the Hoddesdon and Broxbourne Association, in sending every week during the season a plentiful supply of flowers for the decoration of the hospital, while other benefactors added a hundred volumes to the bookselves in the wards.

The North London or University College Hospital, in Gower Street, was established in 1833, five years after the opening of the College from which it derived its second and most commonly used title. The object of its foundation was not only to afford relief to the sick, but to furnish a school for the medical students of the college, and it has fulfilled this latter function with noteworthy success. Viewed simply as a hospital, it is to a considerable extent as distinctly local as the Charing Cross Hospital, the officiating ministers of any congregation in the parishes of St. Giles-in-the-Fields; St. George, Bloomsbury; St. George the Martyr, Queen Square; St. Pancras; Islington; Highgate and Hampstead; medical practitioners of those parishes; or the Secretaries of the District Committees of the Charity Organization Society having the right to recommend patients for admission. The number of beds is now 200; 1,922 in-patients were admitted in 1879, and 15,563 out-patients were treated. The current expenditure of the year was 14,308*l.*, but this left a balance of outstanding bills of 6,355*l.* The receipts,

including legacies, balances, and a loan of 4,000*l.* from University College, amounted to 21,344*l.* In the reports of this hospital, some minute statistics are furnished as to the cost of the institution, from which we gather that each of the out-patients involves an outlay of 2*s.* 1¼*d.* in the year. The total cost per bed, reckoning every bed provided in 1878 (the year 1879 cannot be taken, as the hospital was closed for some time) was 71*l.* 3*s.* 2*d.*, the total cost per bed actually occupied being 82*l.* 9*s.* 10*d.* The average number of days each patient was in the wards was 25, and there was an average of 14 patients to each bed during the twelve months. In connection with this hospital, a "People's Contribution Fund" has been promoted, the idea being apparently to apply the principle of co-operation to the support of the hospital in such a way as to enable a society of working men by combining to pay a life governor's subscription to secure the right of nominating patients, and, by allowing them to elect one of their number to represent them, to give them a voice in the management of the hospital, and a right to a supply of hospital orders. The Committee of this "People's Contribution Fund" consists of artisans in the principal firms and railway companies, and for the year ended 29th February, 1880, the receipts were 370*l.*, including 145*l.* from annual subscriptions; 119*l.* from donations; and 105*l.* from box collections. The hospital authorities seem to have been singularly successful in securing the goodwill and support of the residents in the North-Western District, and as an illustration of the general desire to promote the interests of the patients, it may be mentioned that the Vestry of St. Pancras, after an appeal from the Committee, laid down wood pavement in the streets in which the hospital stands.

Among the special schemes adopted in this hospital for the benefit of the patients, in addition to funds for sending them to convalescent homes, and furnishing them with surgical appliances, there is a fund for an "Invalids' Dinner Table," by which during the year 1879 orders were issued by the physicians and surgeons of the out-patients' department for 3,806 dinners to poor patients at a cost of 200*l.*, in return for the sum of twopence paid for each dinner by the recipient. 1,754 dinner tickets purchased by various ladies and gentlemen were also distributed. A children's department for in-patients is also a feature in the hospital.

The Metropolitan Free Hospital, at present carried on in temporary premises in Commercial Street, Spitalfields, was estab-

lished as a dispensary in 1836, and for the first seven years of its existence it had no beds. The movement for converting it into a hospital for in-patients was due to the suggestion of the late Duke of Cambridge after a visit to the Dispensary on the 23rd May, 1843. In 1860 the number of beds was increased to 12, and this was raised to 20 at the time of the closing of the old premises in 1879, the hospital having been compelled to give up the site to the Metropolitan Railway. With the funds paid by the Company, a new hospital is to be erected in Bishopsgate Street with 150 beds, of which one-fifth will be devoted to children, one-fifth to Jews, and the remainder to general patients. The number of in-patients during the year 1879 was 276, and of out-patients 43,591, mustering 79,095 separate attendances. The income of the hospital for the year was under 4,000*l.* The average number of beds occupied daily last year was 16; each patient was on an average 22 days in hospital. The cost of each in-patient per week was 1*l.* 4*s.* 5*d.*, the cost of each out-patient 1*s.*

The last hospital in what we have classed as the third group in order of formation is *King's College Hospital*, Portugal Street, Lincoln's-Inn-Fields, established in 1839. Its position, midway between Holborn and the Strand, gives it a vast constituency of poor, for although the grass still grows in Lincoln's-Inn-Fields, the lawyers are alone in its enjoyment, and around them there is an amount of overcrowding and squalid poverty which might lead the visitor to imagine that he was walking in Bethnal Green or Whitechapel. The system of admission by the orders of governors and subscribers is adopted, but urgent cases, accident cases, and out-patients are treated immediately without any letter of recommendation. The hospital was founded by Dr. B. Todd, and it has for many years formed the practical school of the Medical Department of King's College, from which it derives its name. It is a curious fact that the building stands in part on the site of an old burial ground of St. Clement Danes, which numbered among its graves the resting-place of Joe Miller of jesting fame. The hospital receives during the year nearly 2,000 in-patients, and between twenty and thirty thousand out-patients, while in the district around poor married women are visited during their confinement at their own homes, 596 having been attended by the medical officers in 1879. A children's ward forms a feature of this, as it should of every hospital, the department having been established

in 1866 by the late Mr. Pantia Ralli, whose name it bears. One of the indirect advantages of the maintenance of this ward is the training which the nurses obtain in the treatment of infantile diseases. The nursing throughout the hospital is under the care of the sisters and nurses of St. John's House, and in their latest report the Committee express their thanks to the Lady Superior and the Sister Matron "for the excellent manner in which both the nursing and household department are conducted, and for their great interest in whatever serves to promote the comfort and happiness of the patients." The hospital has a Chapel and Chaplain, and a Convalescent Home has recently been established in connection with it at Hemel-Hempstead. The estimated cost of maintaining King's College Hospital is 15,000*l.* a year, and the income last year from ordinary sources was only 6,087*l.*, although by special donations it was increased to 10,027*l.* The funded property of the hospital is 39,263*l.*

The *St. Mary's Hospital*, Cambridge Place, Paddington, furnishes a singular illustration of the arduous task which lies before those who undertake to establish a hospital in London; for although the scheme for opening a hospital for Marylebone and Paddington was put forward in 1843, it was not until eight years had passed away that it was formally opened. The first stone of what was then described as the Marylebone and Paddington Hospital was laid by the late Prince Consort in June, 1845, on a site which once formed the reservoir of the Grand Junction Waterworks between the Great Western Railway Station and the Harrow Road, and the first ward was opened in the year 1850. The district in which the Hospital stands includes the western division of Marylebone and the whole of Paddington and Notting Hill, so that it supplies medical aid to a population which probably may be numbered at little short of 200,000. The hospital is admirably constructed as far as its sanitary arrangements are concerned, and it has 200 beds in constant use, the applications for admission having of late been so urgent that 206 have been occupied at one time. During 1879, there were 2,164 in-patients, of whom only 430, or about one-fifth, were admitted by subscribers' orders, the remainder being classed as casualties or urgent cases. The out-patients treated during the same period numbered 9,840 exclusive of 7,274 accidents, and 276 married women were attended during confinement at their homes and supplied with every necessary. The cost of each occupied bed during the year was 68*l.* 13*s.* 9*d.*,

a reduction of nearly 7*l.* on the average cost of the previous year. The medical school of the hospital is largely used, and as all legally qualified medical practitioners, who are governors of the hospital, are eligible as members of the Medical Committee, which consists of the ten principal medical officers of the hospital and other medical governors not on the staff, the school may be said to be conducted strictly under the eye of the profession. The medical governors are also invited to attend all the hospital lectures, and if residing within half-a-mile they are entitled to be summoned to all important operations, so that at St. Mary's, every effort is made to render the institution of the utmost possible service to medical science as well as to make it a home for the poor of the neighbourhood. The income for 1879 was 14,138*l.*, but of this amount only 4,438*l.* came from annual subscriptions, 1,832*l.* being donations and 5,544*l.* a legacy, while in order to meet the actual outgoings, which amounted to 14,096*l.*, it was necessary to borrow 1,600*l.* from the Bankers. Such a fact in the face of the statement that every effort has been made to economise the administration as far as is consistent with the well being of the patients and with the constant needs of the population as shown by an admission of 7,274 casualties, gives the hospital a strong claim to a larger measure of support. All nurses employed in the building undergo a year's training before they are taken on the staff.

In the year 1856, two of the more distant suburbs, the North and the West, were supplied with local hospital accommodation, the *Great Northern Hospital* being established at King's Cross, and the *West London Hospital* in the Hammersmith Road. The Great Northern Hospital is a free institution, working in premises in the Caledonian Road which are but imperfectly adapted for the purpose, and hence the Committee are making strenuous efforts to provide a permanent building. The vast population of Islington and of the neighbourhood of the City Road sends its sick and injured to the hospital, and as a proof of the extent to which it is used we find that during last year the number of new out-patients relieved was 9,342, by whom 28,719 attendances were made. The number of in-patients was 350. The income of the hospital will at once strike the reader as being remarkably low, amounting as it does to 3,215*l.* 18*s.* 3*d.*, and of this less than half was received in annual subscriptions. One of the features of the management of this hospital is its Ladies' Association, which not only assists in collecting subscriptions

for the general fund, but also undertakes the work of visiting and reading to the in-patients, and providing them with means of admission to convalescent institutions when they leave the wards. The West London Hospital, instituted 19th May, 1856, receives annually more than 500 in-patients, and about 25,000 out-patients. Its income, which is derived from annual subscriptions, is insufficient for its needs.

Last on our list is the most recent foundation, the *North-West London Hospital*, Kentish Town Road, which was opened on the 15th July, 1878, by the exertions of two ladies. For nearly twelve months the benefits of the hospital were exclusively confined to women and children, there being eight beds for women, and eighteen cots for children, with space for more. More recently, however, an out-patients' department has been opened on three evenings in the week for men and boys on the self-supporting principle, so that the usefulness of the institution has been very materially extended, while thrifty and provident habits are also promoted. It is, in fact, a special feature of the management of this hospital that a small payment is expected from all patients, according to their means, except in cases where they have obtained letters from subscribers. During 1879, there were 99 in-patients, with an average duration of residence to each patient of 32 days; of these more that half came from Camden Town and Kentish Town, and only a small proportion from the provinces. The number of new out-patients treated during the year was 3,717, and of old cases 6,948, giving a total of 10,665 cases. The income for the year was only 1,056*l.*, and as the expenditure included the rent of one of the two houses occupied (the rent and taxes of the other being defrayed by a benevolent lady), it will be clear that the institution gives a maximum of benefit for a minimum of outlay.

Such is a brief view of the origin, progress, and characteristic features of the great houses for sick folk, which form one of the glories of the Metropolis, and it is satisfactory to reflect that the corrective influence of public opinion and the growing determination to check wasteful expenditure, are leading to the detection of any mismanagement wherever it exists. That there are anomalous inequalities between the outlay in some of the hospitals as compared with others is unfortunately still a notorious fact, but this it may be hoped is an evil which, with the aid of healthy and friendly criticism, will ere long disappear.

CHARLES MACKESON.

WATCHMAKING BY MACHINERY.

WATCHMAKING by machinery in all its details, from the earliest motion—tools to the latest automatic appliances, would require an ample volume to itself; a volume not only ample in the text, but well stored with curious illustrations, from the days of Dr. Hooke, the immortal *ut tensio sic vis*, down to our own. All that we can, therefore, do with the limited space at our disposal, is to give, as it were, a kind of outline sketch, so as to enable the reader to make an intelligent acquaintance with the subject, from the time when it leaped forth into the mechanical arena *as a system* challenging admiration and patronage among the industries of civilised nations. In taking the watch for our present purpose it may be understood, *pari ratione*, that the clock is to a certain extent included; for the last-named is in reality, so far as the two run on the same lines of construction, but an enlarged "presentment" of its delicate compeer, each being often a marvel in its own way. We will here state that persons who have a considerable knowledge of watches and watchmaking machinery—a knowledge extending over many years—candidly avow, that the more they see of the making of a watch, the more they wonder how it can be made at all. The fine pivoting and polishing, the diminutive wheel and pinion cutting, the tiny keyless work, the fairy jewelling and hair-springing, the toy-looking compensation balance with its microscopic screws, and all the singular *et ceteras* that go to make up the speaking monitor of time; they seem to be the production of supermortal hands.

It has been generally believed in this country that machinery for watchmaking was invented in the United States. That this is not correct we think the following evidence will show.

In tracing the subject back we find that one George Sanderson took out a patent on the 25th of June, 1761, with the following preamble:—"Tools and engines for the preparing, stamping, fixing, turning, cutting, and finishing" parts of a watch. The description consists of ten sections, and it is really surprising to read how nearly Mr. Sanderson was[1] to evolving a complete system of watchmaking machinery. We are told of engine lathe, mandril, cutting-frames, screw-press, cutters, dies, *et cetera*. We have, too, "a die, with a number of fixed centres to operate as centre punches, for the accurate dispatch of marking the pillar plates for drilling," &c., no mention is made of the agency

of his motive power upon the train, and we may therefore safely presume that he kept to the fusee. But he had not long to wait, for, on the 20th of April, 1762—only ten months afterwards, a Mr. David Marie produced the first going-barrel which we can discover in horological history. The inventions are described in the Rolls Chapel Reports, and are singularly interesting when compared with our present knowledge and practice. And these things were to be seen 120 years ago!

Again in 1843, Mr. Frederic Pierre Ingold, a very able mechanician from Paris, took out three extensive patents, the reading of which would astonish most people not well acquainted with such matters. He was a Swiss by birth, and, like the bulk of his horologically gifted countrymen, very ingenious. Out of that ingenuity sprang what was afterwards known as "The British Clock and Watch Company." It sought Parliamentary powers, but the opposition of the watch trade was so strong that it failed to secure them; nevertheless the Company went on making clocks and watches until the large sum of 80,000*l.* had been expended. Poor Ingold lost all his own capital, was reduced to comparative beggary and went to work in America. He was beaten, but his system was not. It took root in the New World, grew, and of its power and dimensions at the present day the watchmakers of England have woful experience. Ingold returned to his native country, where he died in October, 1878, at the great age of ninety-two.

The first scheme in America for the manufacture of watches by machinery on a really comprehensive scale was matured by Mr. A. L. Dennison, and Mr. Edward Howard, two leading horologists of Boston, Massachusetts, in the year 1848. In 1850 a small factory was established at Roxbury, in the same state under the name of "The Boston Watch Company." From Roxbury the work was removed to Waltham, a small village about twelve miles from Boston. Curiously enough this Company, like its English prototype, foundered. It became bankrupt in about three years time, and all its machinery went to the "hammer." It is a singular commentary on such speculations that the first of them in the Old and the New Worlds should have ended disastrously. In the latter case the fabled phœnix was to rise from its ashes and be no fable. An Act of Incorporation was granted by the State Legislature of Massachusetts calling a Company into existence which is now known as "The American Waltham Watch Company." That was the beginning, and at

the present time there are about twelve such establishments throughout the States, whilst of clock companies their name is legion ; they are everywhere, in fact.

The success of the new system in the United States quickly turned the attention of suitable men to the signs of the times in this direction, and the first practical embodiment was the English Watch Company. This Company, for various cogent reasons, established itself in Birmingham, and commenced operations in an outskirt on the northern part of the town formerly a pleasant rural suburb, named Lozells, near to Villa Cross. This was about twelve years ago, and since that period the size of the works has nearly doubled. At a distance of several years the extensive "Time Works" of Mr. W. Ehrhardt, in Barr Street West, adjoining the Lozells, erected machinery for the same purpose. Mr. Ehrhardt was admirably qualified, both by horological education and experience, to follow the example of the English Watch Company in the same direction for simplifying such operations. He has been established twenty-five years as a leading watch manufacturer. Although this gentleman's name is not known out of the trade, we will state here that in his own specialty he stands in the very foremost rank. That specialty is the manufacture of chronograph watches and similar instruments of precision. His present premises are new, they form a complete square, and have upon one side the machinery, and upon another the hand-making series of shops. As there are secrets connected with watchmaking by machinery, as in other trades, it seemed doubtful whether our letters of introduction to the Company on the one hand, and Mr. Ehrhardt on the other, would be strong enough to procure us admission, so jealously is all entrance guarded. Neither at Lozells, however, nor at the Time Works, had we the difficulty that we expected. As we went through room after room in both places, we were absolutely amazed at what we saw—automatic machinery constantly before our eyes. The gauged and interchangeable principle is carried out in each place, even in some instances to the thousandth of an inch ; whilst every part of the watch is equally good, sound, and durable. They are all made precisely alike, the high-priced and the low-priced ; indeed, as the same machinery and the same materials are used in all qualities, it cannot be otherwise. The difference in cost consists in extended jewelling, "timing," and extra finishing.

The works of the English Watch Company, and those of Mr. Ehrhardt are the only fully-organised systems in this country for the manufacture of watches by machinery with which we are at present acquainted; indeed, so perfect do they appear to be, each in its several excellencies, that it would be very difficult to award the palm of superiority. We did not visit the engineering shops and stores of the Time Works, but those of the Company are marvellous, whilst the continuous designing of new machine-tools is almost bewildering. In fact there seems to be no reason whatever why these large firms should not in some way or another join hands in their machinery departments, and so achieve a supremacy in watchmaking by machinery that nothing would be able to disturb.

The construction which has been adopted in the machine-made watch is that of the "going-barrel" instead of the fusee and chain. The lever, too, has been included, as it is beyond all question, the strongest, the safest, and the most reliable escapement. The fusee, with its maintaining-power to keep the train going whilst being wound, and its chain of many pieces—some 600 we believe—was then, as now, a sensible cost in the manufacture of a watch. If, therefore, the "great wheel," as it is called, is placed upon the mainspring barrel, and drives the train direct, all the expense and complication of the fusee and chain are got rid of. The mainspring which is used is what we will call an adjusted one. That means that the "pull" of it on the wheelwork during the hours that the instrument is meant to go, is sufficiently even to be governed by the balance and balance-spring in the watch. Furthermore, that such governing power enables the instrument to give time good enough and near enough for all the practical purposes of everyday life. The reason for discarding the fusee in machine-made watches is not far to seek, it is this :—The going-barrel arrangement of the train, from the greater amount of space available by the absence of the fusee, is peculiarly adapted for keyless action in the watch; furthermore, the machinery that cuts the wheelwork of the movement is equally well-fitted to cut that of the keyless winding. As far, too, as our inquiries have gone during the last ten years, we have heard of no one who, having worn a keyless watch of good quality, would abandon it for an ordinary key-winder.

The ease and facility of "stem-winding" are so patent and substantial that such watches will undoubtedly become the watches of the future. When it is considered that there is no

key to fumble for in the pocket, no case to open, no winding-hole to find, either in darkness or daylight, or standing, walking, or lying, it need not be wondered at that keyless watches have taken a firm hold of the watch-wearing community. When, too, it is borne in mind that, by means of the specially designed machinery in these factories, the keyless part of the watch does not cost one half of the same when made by hand, the advantages belonging to the machine-made watch need no argument to enforce them.

The exactitude and beauty of the bevel and other wheelwork, of both the English Watch Company and Mr. Ehrhardt, must satisfy the most fastidious watch wearer that, in the important elements of economy, strength, and reliable timekeeping qualities, there is no need whatever to send out of our own country for watches; and watches, too, of the true English type, presenting that appearance of substantial power which is so loved by the Englishman, whether artisan or millionaire. The perfection to which the machine-made watch has now been brought in England is what could hardly have been dreamt of even a dozen years ago. Improvements all throughout have been keeping pace together, but the most anxious application has been devoted to what is technically named "the springing"; that is, the ratio of adjustment of the balance and balance-spring to the moving-power that acts upon them through the train. As this moving-power comes from the mainspring, that "prime motor" has had a vast amount of careful experiment bestowed upon it; even to the extent of inventing a machine for rolling, tempering, and blueing it in a regular manner, by self-acting mechanism! All kinds of going springs are sized and numbered, so that, according to the caliper of the movement, will be the nature of the main and balance springs. A mainspring is weighted on an "adjusting rod," and according to the weight which it will balance on this lever fixed on the end of the barrel axis, so will its power be determined. And to prove, furthermore, how attentively the machine watchmakers have been working, we were shown a hair-spring gauging machine, the invention of Mr. Robert Bragge, of the English Watch Company, that has the following capabilities. It will give the variation of all makers' hair-springs, and not only that, but the variation that may exist among the elasticities of the springs of any one maker of the same size. That is, undoubtedly, a "great feather" in the cap of the machine watch manufacturer, and will be sure to bear ample fruit in the future as it does in

the present. Balances themselves, too, are weighed to small fractions of a grain; and, taking therefore, these weighings and testings, it need not be surprising that machine-made watches do, with ordinary care, keep time to a minute a week. That is, that time has been kept to the ten thousandth fraction of seven days. We have rated machine-made watches to much finer work than even that.

From this it will be easily understood to what a nicety the compensating relations of main-spring and balance have been brought to each other. But that has not been arrived at by any royal road whatever. Costly and careful experiments, carried on month after month and year after year, have built up this reputation for the going-barrel, until it is now fast casting the fusee from the unchallenged supremacy which the latter has so long enjoyed. The economy in the machine manufacture of watches is very striking, and that, too, notwithstanding the great outlay of money which has been necessary to bring it to its present excellent pre-eminence. The retail price of a first class keyless, machine-made watch in silver cases, strong and sound in every respect, may be given as that of 10*l.* against 16*l.* for the same quality hand-made fusee watch. At least those are the respective prices which we have ascertained upon personal investigation. Here, again, has machinery in England done for watches what it has done for everything else. It has facilitated the mode of manufacture, and reduced the cost at from 33 to, in some qualities, 50 per cent.

At the first glance this naturally excites our surprise, but the moment that we step to the inside of a machine watchmaking manufactory we see the threads of a matured, disciplined organisation from every nook and cranny of the premises, uniting as one cord in the manager's room. A speaking tube will change the work in one wing, suspend it at the basement, and hurry it on in the third story. The engine may be going too fast, the wheel-stamping too slow, the case-making loitering, or any other of the thousand-and-one things in such a place may be out of gear; yet, the one directing head in that room knows all, and guides all from the opening hour in the morning to the closing hour at night. And that is the state of perfection to which watchmaking by steam machinery has come to at the present day. Shades of Hooke, of Tompion, of Graham, of Harrison, and of all the mighty horological dead!

The English Company's works may be classed into the engine-

room, and engineer's shop, the plate-room, the flat steel-work room, and what they call "the putting-up room." There are other rooms, and duplicates of those just named, but they need not be further alluded to here. Previous to beginning our round we had a conversation upon what may be termed the *rationale* of watchmaking by machinery, and how it was successfully worked out.

We were informed that the governing principle with the Company in the machine-making of watches was arranged in the following manner :—

"1. Simplicity of movement, having for its basis the going-barrel instead of the fusee. They make the lever escapement, and no other.

"2. Such a series of sizes that the requisite machinery can readily be adapted to any of the series.

"3. The substitution, wherever possible, of steam power for hand ; the fiddle-bow is abolished, and all turning, drilling, and pivoting is done by power.

"4. The bringing of the whole series of processes for the entire construction of the watch under one responsibility and control ; and crowning all these is the absolute interchangeability of every part of the same size through any number of instruments upon which they may be tried."

Lest this part of our subject should escape our memory we will mention it now. We were offered a test of the interchangeability and we accepted it. A number of movements of watches of the same size were separately placed on the bench in pieces. A workman proceeded to take something from one set, and something from another, putting the movement together until it was ready for springing. That was soon done, when, much to our astonishment, and we will frankly say admiration, the watch was set going before our eyes, cased and all ! We have stated this achievement to others since our return, but we spoke to unwilling ears, our only recognition being a pitying smile of incredulity. Still, it is true, for all that, and any one sufficiently interested and obtaining admission into that factory may see the same thing for himself.

In the machine-manufacture of watches, as with other complex articles in which interchangeability is an elemental basis of value, the subdivision of labour is carried out to a minuteness of which few who have not seen it can form any clear conception. In the making of watches, especially, human ingenuity seems

almost to have exhausted itself in constructing machine-tools that respond almost to the thoughts of the operator through the touch of his fingers. We shall give some closer indications of these further on ; but, for the present, we may say that, from the moment when the different metals and jewel-stones enter the store-room of the factory until the finished watches are passed from the examiner's hands ready for the customer, they are seldom free from the action of some machine or another.

We will now go leisurely through the factory and briefly state what we saw going on there under the explanatory guidance of Mr. Haseler, the works manager.

The first place that we entered was the engine-room, where steam was doing its duty upon several miles of shafting, pulleys, and driving-bands. Passing from thence we went into the engineers' shop. Again we were somewhat startled by the novelty of such a name in such a place. An engineers' shop with steam-driven heavy lathes, Cyclopean "vices," a smith's forge within view, and all the "paraphernalia" appertaining thereto to do what? To fashion and finish engine-tools for the construction of the many delicate parts that go to make up such a small instrument as a watch! But so it was. The mechanicians were hard at work with all their numerous appliances in order to produce, not only new contrivances, but to keep pace with the "wear and tear" going on around them.

The first operations connected with the making of a watch by machinery are upon the plates ; these plates with the pillars that join them form what is called the frame of the watch, the train, or wheelwork being between them. Plate-making is done in the stamping room. Here a workman with a strip of sheet brass of the required width and thickness places the metal under a powerful punch, sets the latter in motion and the blank plates are heard to drop rapidly into the receiving box below. It may be stated here that the brass from which these plates are struck is of a special quality as to hardness. But, as if that was not sufficient, the blanks are taken to the planishing press. There they are each placed upon a suitable die, when a counterpart, that can be moved to the momentum of a hundred tons, comes down upon them, greatly hardening still further the already hard metal, and somewhat lessening its size. Upon removal from the press, the surface is as smooth as a disc of glass, and when two of these blanks are struck together, they emit a clear metallic ring. In fact so hard has the metal now become that,

with the exception of the quick action of the watch balance, jewelling for the pivot-holes might be almost dispensed with. After planishing, the blanks are put on the lathe, and a perfectly true surface given to them, and "faced," and sunk for receiving the wheelwork. We will now mention that the hand-making method is to hammer the plates, and then "face" in the lathe. We have, however, been assured that such work bears no resemblance in quality to the even, enormous pressure of the planishing press. The blank having been "sunk" to take in some of the wheelwork and "faced" it is next drilled for the feet of the dial, and the pillar holes tapped. It now ceases to be a "blank" and becomes a "plate." Another machine has made and tapped the pillars, and these are all four of them screwed into the plate in five minutes. We have now the "pillar-plate," and the one that goes on the pillar-tops having been as rapidly prepared for its purpose, is called the "top plate;" both when fitted in this way constitute, as we have said, the frame. To show the rapidity of some of these operations, we saw the recess for the dial wheels cut in half-a-minute and the dial "seats" done to the thousandth of an inch, if necessary and with a quickness and cheapness that hand labour may pant and toil after in vain.

The drilling of the plates is a most interesting operation. To effect that object properly, what are called "templets" of case-hardened steel have been made to represent the watch plates for that particular size. These templets have all the pivot holes drilled to position, exactly as a watch would have. When the blank plate of the watch has to be drilled, it is fixed into its particular templet, and the machine is set going. The action is, that the drills passing through the templet holes necessarily go through the brass blank underneath. The consequence is that, when the drilling is over, each brass plate has become an exact counterpart of its templet, and a thousand plates are the same, and, therefore, perfect duplicates of each other. To make a point here from the rigid logic of mechanics, we will remark that the pivots, or ends of the axles of the wheelwork are being prepared upon a similar plan, so that when pivots and pivot-holes come together, the fit is so true that there is only room for the slight film of oil that is required for lubrication. That is really something to be amazed at.

The wheels are all stamped out in blank, and afterwards cut, polished, gilt, and axled by hundreds in a day, whilst other machines are making screws and tapping screw-holes to take

them. Keyless-work and cap-making occupy many hands, and we go on until we come to the plate-gilders and case-makers shops. The jewelling-room, too, occupies our attention; we next move on to the fitters, see them at work; next to the "springer and timer" alluded to already; the examiner is visited, &c., until finally we reach the manager's room, where every watch is handed in ready for delivery. A detailed description of all the machines and their multifarious operations would require the whole of this part of the "Companion" to itself. We may, however, state that the gauges worked up to are so fine that the thousandth part of an inch is an appreciable quantity. There is one machine that has a cutter revolving at the rate of about 3,000 revolutions a minute, whose business it is to cut a dove-tailed slot over a jewel-hole. So exact is it set by a micrometer gauge that a very fine hair has been laid lightly across the jewel, the cutter has divided the hair, but has not touched the stone! It is said to be sensitive to what seems almost incredible, namely, the 2,500th of an inch.

Such is watchmaking by machinery, and after what has been stated here, it will be plainly understood that a judicious expenditure of capital, highly inventive qualities, and good business management will not fail to place this industry on a sound and extensive basis, and to render it in its particular way a success to its conductors, and a blessing to the hundreds of thousands of Englishmen who will be enabled to supply themselves with sound reliable timekeepers at prices which come home and appeal forcibly to the common sense and opinion of every one.

We have purposely left to the last any reference to the "hands," the work-people by whom these numerous machines are guided. Like their work, they are remarkably clean and neat. The shops having to be kept in good order, the people who inhabit them partake of the same characteristics. Furthermore, we were informed that in such high estimation do the watch establishments stand in the surrounding neighbourhood that the list for probable vacancies is always full; and that, consequently, every new comer is a selection from a number of applicants. Moral status has to be verified, both for the men and the women, so that to be a worker in either of those factories may be taken to be a certificate of good character in itself. This is as it should be, and is well worthy of imitation elsewhere.

CHARLES STUART MURRAY.

"HONEY MAKYTH MONEY," OR BEE FARMING IN THIS, AND OTHER LANDS.

"A twenty acre field of grass, well sprinkled with white clover, affords to the suck of bees, 100 lbs. at least of honey per day, value 5*l*., or twenty acres of heather probably 200 lbs. per day, value 20*l*.; who will calculate the honey value of Great Britain?"
PETTIGREW.

No thoughtful person can for a moment doubt the truth of the proverb, "honey makyth money," which is as old as the English language, but although no one will either doubt or make light of it, there are thousands, who when asked to engage in some trade, which they know but little about practically, will at once ask the oft repeated question, so dear to the heart of every shop-keeping native, "How much will it bring in?" We hope to clear up any doubt upon this point, by a brief reference to bee-keeping in other lands, and at the same time answer the question to the satisfaction of English readers.

First, to give some idea of the vast importance of bee-farming, in an economical point of view, we import annually into this country, not less than 10,000,000 pounds of honey, for which we pay probably half-a-million sterling. This may appear upon reflection startling, but the returns can easily be obtained from the Custom House authorities, and they will be found to slightly exceed the above figures.

Notwithstanding this, no country in the world professing to have reached the same height of civilization, so little understands the economical management of bees. On the continent, for example—we now refer more particularly to the German States—bee-farmers are numbered by the thousand. We do not mean by the term *bee-farmers* (which we confess, is a newly coined-word) persons who keep two or three small stocks on a bit of a bench, outside the cottage door, but men who devote all their time to the occupation, and count their hives by the thousand. Societies are also in active operation, both in Germany and in America, and at stated periods, large conferences are held upon the subject. They have also their weekly or monthly publications, giving news of any improvements in the apiaries, and stating the monthly or yearly returns.

We have not been able in every case to secure the exact number of colonies or hives kept working, though we can judge, without being far wide of the mark, by the quantity of honey and wax exported, as by the published yearly average.

Denmark is reported to find pasturage for 90,000 hives, they export about 2,000,000 lbs. of honey, and 118,379 lbs. of beeswax; we have mentioned this kingdom first, so as to institute a just comparison betwixt it and Germany.

Wagner states, according to the statistical tables of the Kingdom of Hanover, the annual production of beeswax, in the province of Luneberg is 300,000 lbs.; each cottage skep yields not more than an average of one pound of wax; we may thus calculate, with tolerable accuracy, that 300,000 hives are maintained in this small province alone, for trade purpose, *i.e.*, at least 300,000 colonies must every year be sacrificed, and we should suppose that an equal number would be kept on the stands, thus it is assumed about 150 stocks are kept on every square mile.

A German writer states that the bees of Luneberg pay all the taxes assessed on their proprietors, besides leaving a large surplus. The importance attached to bee-culture accounts in part for the remarkable fact, that the people of a district so barren that it has been called the Arabia of Germany, are almost without exception in easy and comfortable circumstances.

Bohemia, a few years ago, from a very careful census, was supposed to contain 160,000 stocks; there is little doubt it now numbers an average of 200,000 hives, this would be 10 hives to each square mile.

We have not seen any official return from Wurtemberg, since 1856, when there were 58,964 colonies of bees, chiefly kept by cottagers. Bee-farming, however, flourishes in East Friesland, a province of Holland, which although containing 1,200 square miles, maintains an average of 2,000 colonies on each mile.

It was once feared that too many stocks could be kept on any district, so that it would result in sheer starvation. This notion was thoroughly sifted by Dr. Radkofer, of Munich, so as to expose its utter fallacy, and he proved that there were more flourishing apiaries in Germany than people were aware of. He said, there are many apiaries in close proximity containing from 200 to 300 colonies each. At the time Ehrenfels had 1,000 hives, at three separate farms, but so close to each other, that he could inspect the whole in a half-hour's ride. The average yield, after defraying all the expenses, was two dollars each hive, or a net income of nearly 500*l.* per annum.

From the report of the late Rev. W. C. Cotton, whose "My

Bee Book," has not yet lost its charm, we gather that the island of Corsica paid to Rome an annual tribute of 200,000 lbs. of wax, this would suppose also a production of nearly 3,000,000 lbs. of honey from 200,000 stocks of bees, about 60 hives to each square mile.

In the province of Attica, Greece, containing 45 square miles, 20,000 hives are annually taken up, yielding an average of 40,000 lbs. of wax, and 2,400,000 lbs. of honey, or 440 on each square mile.

Belgium is believed to contain 10 stocks on each square mile; from a recent return 200,000 hives are maintained in the kingdom.

The yield of both honey and wax in Austria is estimated at an annual revenue of seven millions of dollars.

In Russia and Hungary, bee-farms numbering from 2,000 to 5,000 stocks, are said not to be at all uncommon, and we have seen it stated that as many as 4,000 hives are often gathered on a single heath in autumn in many parts of Germany.

The district around Narbonne has been famed for many years for its superior honey, collected early in the season, chiefly from the rosemary, but an abundant yield is not so much looked for as to secure good and well-flavoured honey, which is sold at a very high price in our markets.

The Rev. J. Berry, who is now in this country sending out numerous parties of emigrants to New Zealand, writes as follows, in answer to an inquiry respecting bee-farming in that colony. "Bees are common in New Zealand now, also honey is plentiful and very good, it finds a ready sale in tins. One large honey establishment, which I suppose would be correctly called a bee-farm, is to be met with at Gisborne, in Poverty Bay. The owner has an average yearly stock of 400 hives; this pays the proprietor well, and will give you an idea of the capabilities of the colony in this direction. This is the only large apiary with which I am personally acquainted, although they are now becoming plentiful. The unusual abundance of clover there, I think, is favourable to bee-farming on an extensive scale." Some of our readers will remember that the first consignment of bees was taken out to the colony some years since, by the Rev. W. C. Cotton, who went out in the same vessel with the first bishop consecrated to that see. Upon his return, he stated that the bees multiplied rapidly in the

north island, each stock swarmed so often that it was not unusual to find from seven to nine hives as the produce from a single stock each season. They were not long in taking possession of the hollow trees in the woods, so that bee-hunting was followed by the natives as a pleasant pursuit. On one occasion, after straining the combs before a fire, on the outskirts of the forest, a native boy had climbed up a tree, over the large pan, led by curiosity, to watch their proceedings, when he by accident fell amongst the honey. The Bishop states, "he was the *sweetest baby* he had ever seen."

The neighbouring colony of Australia has not made the same rapid strides in apiculture as New Zealand. There are many causes for this, the chief of which is, that the people are more given to commerce than agricultural pursuits, hence it has been much neglected, for bees were introduced to South Australia many years before Mr. Cotton sailed with his living freight with Dr. Selwyn. When the party called at Melbourne on their way to the new diocese Mr. Cotton seeing a colony of bees busy at work wished to show his friends and shipmates his skill in their management, but on taking a hive up, he found that the hot climate had made them much more fierce than his Oxford bees, and he was severely stung.

Leaving other parts of the world for a while, let us glance at the New World. Here it is where the people, ever full of energy and life, do things on a large scale, they cannot be content with our old-fashioned jog-trot sort of life, but must, it seems, lose or win, and hence men speculate largely in big farms, enormous stores, &c. But these undertakings are exceeded in importance by their vast bee-farms. We heard of a bee-farmer on the Pacific Coast, in the neighbourhood of San Francisco, who had more than 10,000 hives, and constantly employed a little army of men and women, superintending this enormous honey and wax factory. This gentleman exported over 500 tons of honey to Europe, besides keeping probably as much for American, or what he called home consumption. He realized over 5,000*l.* one season, net profit, after paying his two carpenters, who were constantly the year through making bar-frame hives, and other bee furniture, and men and women who were chiefly employed in the harvest. Some were accustomed to watch only, and afterwards hive the swarms, for he did not prevent swarming, as is now done by a certain class of bee-keepers at home. "You may depend upon it," was his motto, "if you keep the stocks

strong, and let them follow their natural method, you will soon make a fortune by your bee-farm alone." After speaking more fully upon honey in a future page, we will then tell our readers where to find the Western Bee-Farmers' method of making his fortune.

We must, however, again come back to Europe, and proceed with our inquiries amongst the Old-World Apiaries, for our space is too limited to do more than briefly allude to the American bee-keeping. It is strange, and often in former years the problem has arrested attention without being solved, how it is the Bee-keepers in the Alps, and especially in the higher Swiss Valleys, are so successful often on the margin of eternal snows, where hundreds of the stocks perish from extreme cold alone, and where according to Gelieú, they are compelled to seek new stocks almost every spring, amongst their neighbours in balmy Italy, and yet do so well, for they can secure more than an average of 100 lbs. of the purest honey from each stock, besides the swarms, which are sold for about 10*s.* each. This honey is so esteemed by the summer tourist that it is frequently sold for 2*s.* per pound; but even if it only realises 1*s.* 6*d.* per pound, the owner can clear 6*l.* net after paying 1*l.* for the stock at the beginning of the season. "Yes," it may be said, "they have plenty of flowers to feed upon on the hillsides;" but this is not the secret of the success attained, as a recent author in most touching language tells the tale of their sad losses by death in the hard relentless frosty weather. We have far better and fairer pasturage for our hives in England, without any of their drawbacks by death, yet we cannot make more than from 15lbs. to 20lbs. of honey per stock. While, however, the importance of bee-keeping as a part of our household economy is not yet so generally recognised in the British Islands as to secure a Professor's Chair in our Colleges, as in Germany, still we should be glad to see the subject taught in our Schools, and especially in the Agricultural Colleges, where it might be productive of great good. It is true, we have a small, though interesting monthly Bee Journal, devoted exclusively to the Apiary, but it seems to be read by a, comparatively speaking, small number of subscribers. This will explain the lack of interest manifested on the subject.

Turning to the real value of honey, for we wish to speak of it merely as a commercial product, and therefore of its value in the market, we confess to having purchased honey at as low a price as 7*d.* per pound from a wholesale chemist, but it was

inferior, dirty, and in a fermenting condition. We have also known Chili honey sold at a very moderate price. These facts we now mention in order to prevent any attempt to run down English honey to a low figure, for no country in the world can produce such rich honey as England and the western parts of Ireland, and thus, our honey (alas! only produced in comparatively small quantity) is so much sought after. Pure virgin honey, produced in any county of England from white clover, or the still more favoured heather, will realise in London 2*s.* 6*d.* per pound; super honey stored in boxes apart and free from the blackened breeding combs, either in the white waxen cells, or drained in a clean manner from the combs is worth also, when considered as a pure product, 2*s.* 6*d.* per pound. When it has been plentiful we have sold it as low as 1*s.* 6*d.* per pound, but this was the lowest price we ever had offered for it, and we have sold many hundredweights, both to private families for use on the breakfast table, and to the confectioner and italian warehouseman. It must be acknowledged that much depends upon its purity and the cleanliness of samples. We have seen dark-coloured honey taken from cottage skeps, and to say it was like treacle in consistency and colour would be to speak truthfully, although the old dame who owned it demanded a shilling per pound for the rubbish, which would have been expensive at 6*d.* per pound. If people are careless, and mash up a lot of young brood along with the honey and wax, then lay it on a sieve before a great hot fire to strain, how can they honestly expect any one to purchase so inferior an article? Examine the celebrated Narbonne honey, at least that sold largely by London confectioners and chemists, as the pure Narbonne honey; it is not as dark coloured as our white clover honey, but is almost white, although the flavour is not so good as either clover or heather honey.

We do not now speak of wax but honey, and we assert that every bee-farmer, if he takes care to have a pure product, will readily realize 1*s.* 6*d.* per pound for his honey. Now supposing each hive gave 100 lbs. of good honey every season, under the simple Californian system, it would indeed be a low estimate. We are aware there are bee-keepers, *not bee-farmers*, or even bee-masters, who are apparently satisfied with 10 or 12 lbs. of honey from each stock, as the season's yield, and when we mention 100lbs. they may regard our estimate with astonishment, and appear to discredit our statement; but we speak within

bounds when we declare that every bee-farmer should have at least, as the net result of the season's labour, an average of 100 lbs. from each hive or colony. There are some years when the yield of honey by flowers, and from the honey dew is exceedingly small, compared with other years (for example, a good wheat year is a good honey year; orchard fruits have been spoken of as a good test, but it is not so trustworthy as the wheat), still the average should be every year as above stated. Mr. Pettigrew, who has studied the subject very closely, with a view to make the most of his time and money, says, "such a return as this may seem incredible to those who are accustomed to get from 8 to 10lbs. from their hives; such results, however, and far larger than I name, are annually obtained from those who understand the management of bees and the advantages of densely populated hives. I firmly believe that the above results may be obtained in almost any district in England." The returns obtained in the north of England are more than double what we have given above as possible; thus Mr. Pettigrew again states: "The Carluke swarms last year yielded 100lbs., 130lbs., and 160lbs. from each hive, 90 and 100lbs. being of common occurrence. Robert Reid obtained from one stock and its two swarms 328lbs. of honey, and the following year his first swarms rose to 106lbs. and 112lbs. each, and the year after two stocks gave 90lbs. and 120lbs. Robert Scoater's return for three swarms 120lbs. each, and another 130lbs. Mr. Jack, the same year obtained 161lbs. and 104lbs. from first swarms, and 68lbs. from a second swarm, and took 230lbs. from two old stocks. "If" says Mr. Pettigrew, "Carluke swarms rise to these weights, why not elsewhere?

We call to mind another excellent bee-farmer, who obtains a large yield of honey from his hives. Mr. Fox, a Devonshire gentleman, gathered from two supers 221½lbs. of pure virgin honey, net weight, as well as 93lbs. from a swarm, hived so late as the 28th June. The Scottish bee-farmer, Robert Reid, mentioned above, also gleaned this same season, from an old hive and two swarms 328lbs. of honey. Also Mr. Pettigrew says, his cousin realized 40*l.* from nine hives, but Reid claims his clear annuity of 100*l.* from his industrious subjects.

Following up to us this interesting theme, supposing we take the small average of 100lbs. per season from each healthy stock, and keep an even dozen of hives, 100lbs. of pure honey will realize 7*l.* 10*s.*, this would be exactly 90*l.* per annum clear

profit, just within the old bounds, so that no Income Tax Surveyor can compel you to pay the unpleasant, because inquisitive, tax upon your trade or profession, if you so wish to term it, of bee-farming.

This is no imaginary picture, as we shall presently show by facts as well as by figures, for far larger results are every year obtained by men who understand how to humour and manage their bees, but no one can be properly said to manage his bees if they do not yield a heavy return for the capital invested and labour expended upon them. We have read somewhere that one of the bishops of the Anglican Church, when visiting the parish of one of his hard working curates, for the purpose of confirming the village children, having got through the service, was cheerfully invited to the pastor's residence, to partake of dinner before again leaving for home. He of course expected a very plain table, knowing that his friend was only in the receipt of 40*l.* per annum from the living, but to his surprise, turkeys, pheasants, hares, &c., were placed before him. In a kindly way he inquired how the curate could afford such a repast out of his small stipend, especially as he had besides a numerous family to maintain and educate, and the thought crossed his lordship's mind whether his host was not robbing himself and family for the purpose of show and parade. "My lord," meekly replied the hard working clergyman, "I make a handsome competency from my factory." "Do you know," retorted the Bishop," you are not allowed to engage in any trade or calling of a worldly character, having once assumed the priestly office?" He did not reply to this exhortation, but after dinner requested permission to show his lordship over his extensive factory. To his surprise and joy the Bishop beheld in the large apiary, the factory from which the curate, by means of careful management, realized a far better income than from the church over which he presided as pastor. Afterwards when any clergyman complained to the Bishop that his income was too small to live upon, with any degree of comfort, he invariably replied "*keep bees—keep bees*," at the same moment narrating the history of the curate's factory.

Our cottage friends, more than any other class, we would strongly urge to *keep bees*. Cottage economy is untaught and unpractised in this country; tens of thousands of our paupers and half-starved cottagers might live in ease and comfort if they had been taught in their youth the spirit of independence and how to gain an honourable livelihood; no doubt, any industrious

villager, living by the roadside, and having a small garden, may gain from 50*l.* to 100*l.* per annum from bee-farming, though not if it is done in the same way as by their old forefathers, in small straw skeps, left out all the winter, exposed to the weather, or in a decaying condition during wet summers. How can they expect bees, under such miserable circumstances, to be healthy? and without health and comfort they are, like everything else, unprofitable.

Thousands of tons of honey, representing millions of pounds sterling, are allowed annually to be lost and evaporate from want of bees to gather it, and yet we are satisfied to import from abroad that which may be had at our very doors; and this at a time when our pauper population is increasing to such an extent as to become a great national disgrace, and cause the greatest anxiety on the part of our legislators, who have utterly failed to stem the torrent which threatens to overthrow our social system.

Another plea made by cottagers is scarcely worth consideration. It is often said, "Oh! there are too many hives in the country, it will soon be overstocked." We shall never be able to overstock the rich pasture lands of England with bees. As we have seen in Germany, often hundreds of hives are kept on every square mile, whereas taking our counties throughout, it is questionable if we can, at the present time, find five stocks as the average of each square mile, where, on the other hand, it is estimated we have an inexhaustible supply of honey, to keep 1,000 hives hard at work on each square mile. Even if we could prevail upon our agricultural and horticultural societies to take up this all-absorbing topic, "*honey makyth money*," and to act upon it with energy, so as to prevail upon small farmers and cottagers' wives to commence keeping bees, if they only kept them upon the old-fashioned plan, "Live if you can, but if not, you must starve, for I am too much afraid of your stings to meddle with you," even under such unpropitious circumstances we should be vast gainers.

Glance at figures, which really become stern facts, if examined by the light of our Custom House Reports. Over 600,000*l.* worth of honey and wax is annually imported; part of this represents 16,000,000 lbs. of honey. Elsewhere wax and honey, the product of our industrious hive tenants, are estimated at their true value, if they are not in Great Britain. We have but little hope that bee-farming will become general, unless we can clearly demonstrate, that "*Honey makyth money.*"

In the neighbourhood of large manufacturing towns, bee-keeping may not be so profitable a speculation as in villages far removed from the din and smoke of town and city life, yet, strange though it may seem, we know one of the most successful bee-farmers, whose apiary is close to a large manufacturing centre. Again, some of our readers will think it strange when told that they are often kept with pride by the factory operative in his rude garret, and some excellent virgin honey in good sized supers is not unfrequently exhibited at our "*Flower Shows,*" made in the upper room or garret of the artisan.

But look at the subject in another light. It is certainly deserving attention, if only a good stock of honey is yielded by our hives to supply our breakfast table; we can think of nothing more healthy, it is certainly far superior to butter.

The poor working man, if he is so fortunate as to be the owner of a cow, must pay a heavy rent of pasturage on some neighbour's fields, for he is not even allowed the privilege, formerly cheerfully given to his forefathers, of turning it into the lanes to pick up its food, but he may keep thousands of live stock in the shape of bees, for which he pays no rent for pasturage. They may roam at will over the lordly acres, or gather nectar from a million wax-like bells on the wide-spreading heath, yet no one asks for either tithes or taxes. Is not this worth a passing thought? Can we afford to allow the heather, thyme, clover, or lime tree to waste their fragrance on the desert air, whilst we can with very little trouble and far less expenditure of time, reap ten golden pounds from every stock of bees? Such a thought ought to lead to energetic action, and a rich reward awaits not only those who may become bee-farmers, but in a relative degree most working-men who will invest a few shillings in this, the most profitable investment, open alike to the poor as well as the rich. Stocks and shares may rise and fall, the money market be unsettled from various causes, but if our advice be strictly followed, it will yield a heavy rate of interest amid all the changes.

In years when the farm crops fail, potatoes become diseased, corn blighted, ruin and starvation looking us in the face, a merciful providence has provided alike for all, a wonderfully industrious insect (who works when we are sleeping) to glean a rich harvest from the most deserted spots of earth, for our welfare and well being. Shall we slight His offer? Nay, our motto should be the same as is seen in an old house in Chester:—

"God's providence,
Is mine inheritance."

But ought bee-farming be looked at merely in the light of money-making? Certainly not. Speaking to a village friend the other day about bee-keeping, he frankly stated, "Well, I confess I keep bees, not to make them profitable, but because I love to have them in my garden, and for the pleasure they yield both myself and family." Thousands of our active village workers derive both pleasure and profit from the bees, whilst there are many others, such as retired tradesmen, who love to hear the cheery hum of their stocks, and take a pride in making them comfortable. The pleasantest part of the bee season is the swarming time; with what eagerness the clustering bees are watched in the early part of the day, as they hang like a huge bunch of grapes outside the entrance, and when a quiet stillness prevails amongst them, few seen to be working, and even those few fly backwards and forwards with a lazy hum, not observable unless something important is about to take place. Then when the swarm issues from the parent stock, and is scattered by thousands over the entire garden, how quickly tin cans are put in requisition, and if nothing better is within reach, the old fireside poker or house key is used to beat the rantan. Then follows the process of hiving and bringing home to the familiar sunny nook, where they have stood for many generations.

After all, with the many advantages arrayed on the side of bee-farming, it has been ever found a most difficult thing to convince our cottagers that "Honey makyth money." One reason why villagers have not succeeded as bee-keepers has been what no one at all observant can for a moment deny, that they have been too superstitious; for example, to secure *good luck* bees must either be stolen or borrowed, and many more such foolish notions extensively prevail. Why we have actually seen a splendid swarm allowed to fly away to the woods because they had alighted on a decayed bough, "which" the farmer said "betokened the death of his wife." In this as in all else, *good luck* attends upon *good management only;* in thoroughly wet seasons, we cannot expect so rich a yield of honey, but whether the bees are carried over water, or are stolen, will never alter the weather and produce good luck, so called.

J. F. Robinson.

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, SCIENCE, PAINTING, MUSIC, PHILANTHROPY, LEGISLATION, STATISTICS, AND CHRONICLE OF 1879–80.

ARCHITECTURE OF THE YEAR.

In commencing our remarks upon architecture in the last volume of the Companion, we turned aside in the first place from what is strictly termed architecture to refer to the rebuilding of a celebrated engineering work, as likely to be the most memorable building event of the year. We might not unreasonably refer in the same way, this year, to an event in connection with engineering construction which has attracted more attention than any architectural event of the year, though unhappily this time it is not the rebuilding but the downfall of a great piece of work, which has been the occasion of comment. We allude, of course, to the fall of the Tay Bridge, which, though it took place a day or two before the close of 1879, was some time subsequent to the writing of our last synopsis, and comes therefore into the limits of our present Almanac year. We need not, however, go into that subject in detail, it was purely an engineering catastrophe; but contrasting it with the other engineering event of the previous year, the commencement of the rebuilding of the Eddystone Lighthouse, it is certainly significant to notice the difference between the circumstances. Smeaton's lighthouse had to be rebuilt, not from any defect in the building which the engineering resources of the present day are unable to improve upon in the main, but because the sea had sapped the rock on which it was founded. The Tay Bridge unquestionably fell from defects of structure arising mainly from the attempt to work too cheap and from want of proper care and precaution in providing against all possible contingencies: and the lesson to be drawn from the disaster refers to the whole field of building, whether architectural or engineering, and teaches that nothing is so costly in the long-run, even in the merely commercial sense, as cheap building, not to speak of its more serious cost in human health and human life. The word "build" means, in the original Saxon signification, to establish or to make firm, and all building should be so carried out as to

practically include the primary meaning as well as the secondary one.

The most noteworthy architectural event, properly so called, of the year, has been the laying of the foundation stone of the New Cathedral at Truro. This ceremony was performed by the Prince of Wales on the 20th May, and the matter of the Cathedral has attracted an unusual degree of public interest and been made the excuse for appeals to the public purse, not only in Cornwall but throughout the country. The special interest consists, of course, in the fact that this is the first instance [in this country* of the building of a modern cathedral upon the mediæval model. The nave of Bristol Cathedral was built as a new work, by Mr. Street, not very long since; but that was only the completion of a building that had never been finished, and the continuation of an old design, in the same style as already exhibited in the existing choir. Truro, on the other hand, is an entirely new Cathedral and a new design. The significance of the fact in its social aspect is of course considerable. Within the memory of most of us the idea of deliberately setting to work to build a cathedral would have been scouted as an extravagant anachronism. The old Cathedrals were there, and some use must be made of them, but no one would have imagined that more could be required. It is now considered an act of public virtue to subscribe for Truro Cathedral, and there is talk of another new Cathedral at the new centre of bishopric in Liverpool. How far this new impetus in the building of Cathedrals arises from a real change in the social and spiritual feeling of the community, how far it is but a temporary reaction of ecclesiological feeling, are questions of some interest and in regard to which there will be many differences of opinion. There can be no doubt, however, that the movement ought to be hailed and made much of by the members of a profession which, as Pugin said of it, is mostly concerned with imagining great things and executing little ones. But the architects unfortunately do not seem to make any attempt at evolving a Cathedral specially suitable to and representative of the present day. Mr. Pearson's design for Truro Cathedral, which was fully illustrated in the architectural room of the Royal Academy this year, is simply

* The first instance in England, that is to say: the Edinburgh Cathedral, recently completed from the designs of the late Sir G. Scott, was the first modern cathedral in Great Britain.

the mediæval cathedral repeated, with its aisles, traceried windows, buttresses, and central tower ; and it seems even, judging from the drawings, to want a good deal of that originality in the treatment of gothic detail in a manner of his own which Mr. Pearson has displayed in other churches, especially in those of Kilburn and at Red Lion Square, and on which he was specially and justly complimented on the occasion of his being presented, during the present year, with the Royal Gold Medal of the Institute of Architects. As a revived mediæval Cathedral, we have no doubt Truro will be an admirable specimen, and the work could not be in better hands ; but we should have wished to have seen it something more than this.

We referred last year to the work of restoration going on at St. Albans Abbey, and to the disputes and recriminations of architects and archæologists in regard to the new roof, about which both sides were partly right and partly wrong. The work at St. Albans has during this year passed under a new phase, having become the special and private operation of Sir Edmund Beckett, the most influential member of the restoration committee, who is restoring the west front at his own cost and free from all responsibility to any one. How this came to be the case the legal custodians of the building best know, but it is, to say the least, a very odd and undesirable precedent, that any private person possessed of the requisite means should be allowed to do exactly as he pleases with a historic building which is a national possession. Sir E. Beckett is well known as a gentleman of remarkable practical and scientific acquirements, but of his sense of the fitness of things architecturally (on the artistic side of architecture) we have no evidence at all, and we doubt if there is any other civilised country in which one of the most interesting ancient buildings in existence would be turned over to an irresponsible non-professional person to do as he pleased with it.

Another great church which is undergoing restoration of a very different and much more conservative description is Southwell Minster, which is under the care of Mr. Ewan Christian, the architect to the Diocesan Commissioners. The most conspicuous alteration here is the replacing of the two timber spires which formerly crowned the western towers, and which were destroyed by fire as recently as the commencement of this century, and are shown, sufficiently to give their general scale and character, in two or three engravings prior to that date. This, therefore, is a mere replacing of a destroyed feature for

which the general data exist. The roof of the nave has been raised to the high pitch which it probably had originally, just as at St. Albans, a proceeding the wisdom of which may be questioned in this case also, as seeming almost to call for the raising of the other roofs abutting on the centre tower, to give a proper balance to the whole. But the building has been very carefully and conscientiously treated as a whole. Another Church restoration of some interest has been that of St. Sepulchre's, London, which has been in process for some time, the present restoration forming the latest of a number of changes and vicissitudes, extending back to the middle of the 15th century, which this old London church has undergone.

It cannot be said that architectural practice has been generally very active during the past year, nor need we be surprised at this if we consider the unsettled state of political feeling and political affairs, which always affects building enterprise. If we were to take the collection of designs exhibited in the architectural room at the Royal Academy this year, we might suppose that there was a good deal doing, but inquiry would have shown that many of the designs exhibited were mere schemes not in process of being carried out, and in some cases never likely to be. We may, however, take the Academy collection as partially indicative of the turn which the architecture of the year was taking. Among other things, Mr. Street exhibited an admirable little drawing of the south gable of the Central Hall of the Law Courts. This portion of the building is not yet completed, or at least not open to the public; what its interior effect will be it cannot yet be judged, but there is no doubt that this exterior bit of architecture is an admirable specimen of work completely in the spirit of the best mediæval architecture. Among other things, Mr. Street had also been employed on St. James's Church, Paddington, and on the interior of the Guards' Chapel at the Wellington Barracks adjoining St. James's Park. This latter piece of work has been in progress for some time. Externally the building, well known to dwellers in the West End of London, is one of the very last with which one would expect to find the name of so stern a mediævalist as Mr. Street connected, being a Greek temple design faced with cement. The authorities, however, had determined to have the interior decorated in a high style, and the eminent gothic architect seems to have thrown his interest into the work, adopting for the new woodwork and other details a style borrowed from the semi-

Byzantine work of North Italy, sufficiently gothic in feeling to satisfy modern taste in regard to church fitting, while at the same time not so entirely out of keeping with the architectural associations of the general design of the building as more purely gothic detail would be. One of the principal points of interest, however, in the decoration of the interior is the employment of bas-relief sculptures of scriptural subjects in terra-cotta, by Mr. Tinworth, the artist whose genius Messrs. Doulton and Co., the well known terra-cotta manufacturers, have been the means of bringing to light. These sculptures, which are mostly in semi-circular lunettes, are noteworthy for the naturalistic and unconventional manner in which scriptural subjects are treated, totally different from the archaic and unreal style frequently supposed to be indispensable in pictorial or scriptural work for church decoration. The same artist has executed a bas-relief of the Crucifixion as a reredos for York Minster, a large work in which the same realistic and dramatic treatment is carried out. Mr. Tinworth's treatment of a kindred subject, "On the Road to Calvary," will be remembered in the vestibule of this year's Academy exhibition.

Among other events in ecclesiastical architecture may be mentioned the consecration (January 29th) of the Hook Memorial Church at Leeds, in memory of Dean Hook. The church is a remarkably solid piece of modern gothic designed by the late Sir G. Scott, and carried out subsequently by his son, Mr. J. O. Scott. The tower, which Sir Gilbert considered to be the most important feature in giving dignity to the building, is, however, still wanting. The church is paved with Rust's mosaic, with a design increasing in richness towards the east end; a style of flooring very effective artistically and not exorbitant in expense, and which might very well be more used than it is. The Hook Memorial Church is a good example, in its simple and monumental style, of the recent tendency of modern gothic towards simplicity and mass rather than mere ornamental elaboration. When the revival of gothic first began, the most ornate ("perpendicular") period was the favourite, and its characteristic ornaments were profusely imitated in plaster, when stone or wood were not within the funds available; and by degrees we have been going back and back in our tastes till we now find the very simplest forms of gothic building preferred by our best architects, and ornament, except in what may be called church furniture (such as reredos and

stalls), admitted only very sparingly, and almost in an apologetic spirit. It is possible to go too far in this direction, and some buildings of this school, it may be admitted, somewhat suggest barns rather than churches; but there is no question that it is the best extreme of the two in general, since profuse ornament can never be all good, except at great expense both of money and thought, and a very little good ornament is infinitely to be preferred to a profusion of mediocre and semi-mechanical work.

The Roman Catholic Church of St. Joseph, Brighton, of which the nave alone has been completed this year, will be when finished a fine specimen of church architecture, somewhat French in style and in plan, with a very effective arrangement of a centre apse and two side chapels at the east end; the architect is Mr. Broder. Another important Roman Catholic Church in progress is that for the Franciscan community at Glasgow, designed by the Messrs. Pugin, of Westminster, and which will also be, when completed, a very dignified and solid specimen of modern church architecture, with one or two unusual points in its treatment. The new watering place of Skegness, on the Lincolnshire coast, has a good church in the early English style, designed by Mr. Fowler, of Louth; and another watering-place where English society is not unknown, Nice, has erected a church for the English residents, designed by an English architect, Mr. Lamb, of Manchester, and apparently a pretty building. Among old churches restored, a well known one, that of Spilsby, Lincolnshire, has been successfully treated, the building having become much dilapidated, and requiring a thorough repair. Other church work which was illustrated in the Academy drawings of the year included Congregational Church, Bromley, Kent (Mr. Sulman, architect); St. Joseph's Catholic Church, Guildford, Surrey (Mr. Ingress Bell); proposed church of St. Michael, at Camden Town (Messrs. Bodley and Garner); Holy Trinity Church, Burton-on-Trent (Mr. J. O. Scott); Congregational Church, Stoke Newington (Mr. Sulman); Church of St. Mary, Woolwich (Mr. Jas. Brooks); the New Church of the Oratory, South Kensington (Mr. Herbert Gribble); this was the result of a remarkable architectural competition in which the old Basilica form of church, connected with the oldest associations of Christian architecture, was adopted, and treated in a very elaborate and costly manner by many of the competitors; Mission Church, John Street, Berkeley Square (Mr. A. W. Blomfield); and others.

Among buildings for civil purposes, the principal one going on in London (always excepting the Law Courts) during the year has been the new Fruit and Vegetable Market, intended to complete the great central combination of markets for London, and in process of erection under the direction of Mr. Horace Jones, the city architect. Such a building is not of course expected to be in any special degree an example of architectural beauty; what is looked for is rather that it should be practically suitable to its purpose, well ventilated, well drained, and conveniently planned for the arrangement of the goods and the traffic of sellers and buyers. All this we may expect to find provided for under the hands of the city architect; we might, however, feel that, architecturally speaking, it was possible to make something more characteristic out of a market building than can be attained by merely tacking on to it some well-worn and conventional features of the most conventional style of architecture, such as pilasters, and dormers with a scroll on each side. As architecture, the building will be like the other markets, respectable, but tame and commonplace in effect, and it certainly need not have been so. The new buildings in the vicinity of Trafalgar Square are now completed; the Grand Hotel has been opened for occupation, and seems to be an admirably arranged establishment, and the new Drummond's Bank is completed externally; but certainly the results, considering the importance of the site, are painful to contemplate. The bank has elicited something almost like indignation even from people who pretend in general to no special interest in architecture, and it seems nearly incredible that influential persons possessing a site of such exceptional advantage for a striking building, should have been content to erect such a piece of commonplace as this. The Grand Hotel is not very much better, but economy has to be so closely considered in a building of this class, that one cannot fairly criticise it so strictly; the best thing that can be said, for it is that it looks thoroughly like a "Grand Hotel," that peculiar offspring of modern town-life. But if Trafalgar Square were really what it used to be the fashion to call it, "the finest site in Europe," certainly every effort is being made to rob it of its title to such character.

No very large building of the municipal or Town Hall class appears to be in progress out of London. Liverpool is building new Law Courts, in the shape of a solid-looking square building in a heavy Renaissance style, now about three parts completed.

In the latter part of 1879, since the writing of our notes of last year, some other provincial buildings of a public nature were completed and opened; Sunderland had completed just then its Free Public Library (Messrs. Tillman, architects), also a classic building with no special feature for comment, but dignified in appearance and well considered in proportion; and the National Provincial Bank had commenced in the same town the erection of one of its branch banks, all, we believe, by the same architect (Mr. Gibson), and all marked by the same rather heavy but not unsuitable classic character. The Holborn Town Hall (Messrs. Isaacs and Florence), a "free classic" building with a good deal of character and an elegant angle tower, was completed for use about the same time, and may be cited as one of the best of the minor Town Halls recently built. Ipswich has acquired new post-office buildings, also classic, and Kingstown (Dublin) a new Town Hall (Mr. J. C. Robinson, architect), a building in a semi-Romanesque style, and with a good deal to admire about it. It will be observed, however, that there is a decidedly classic tendency in the Town Halls of the towns of the second class recently erected.

There has been more activity in buildings for educational purposes than in most other classes of erections. Two or three large buildings of this class may be mentioned. The North London Collegiate School for Girls (Mr. E. C. Robins, architect) is an addition to an old educational building, and the old rooms are combined into the new work, but the latter is so extensive as to entitle it to rank as a new building; an important feature in it is a large hall for the general meeting of the pupils (who number 400), the expense of which was borne by the Clothworkers' Company, and which is hence called the Clothworkers' Hall. The architect has contrived to realise a style which cannot be said to be directly taken from any other recognised style, but which is based upon Jacobean and Elizabethan forms, treated with a great deal of the freedom of gothic, and eminently suited for a school building. Another large school building, also for girls, has been erected at Blackheath, from the designs of Mr. J. R. Robson, the architect to the London School Board; a school for 300, with class rooms opening out of a central hall; the style is here again a free classic, partaking of Queen Anne character, but with features of more decidedly classic detail. St. Oswald's School, Ellesmere, Shropshire, is a considerably larger place than either of these, intended for 500 boys, of what it is now the fashion to

call "the lower middle class." This building, which is now in progress from the designs of Messrs. Carpenter and Ingelow, is in what might be termed collegiate gothic style, the idea of the building being evidently taken from some of the late gothic colleges of the great Universities; and it is laid out around quadrangles in the same manner. The School Board Schools at Sheffield, from the designs of Mr. Robson, of London, and Mr. Flockton, of Sheffield, form a large and important work of the same class, very well planned and suitable for its purpose; the style is what the authors prefer to call English Renaissance, which appears in this case to mean all the faults of the Wren School of Architecture without any of the power and picturesqueness with which Wren generally redeemed his faults of detail. The Belfast Academy, at Cliftonville, is another important specimen of school architecture, a new building affording accommodation for 300 scholars, with provision for future extension, and erected in place of old buildings which have been occupied by the school since 1785. This is a powerful and picturesque gothic building, with a large tower over the entrance, and as far as architectural effect is concerned, is certainly superior to any of those previously named; whether it is as well planned as some of them is another question; it does not, certainly convey so much the idea of a modern school; the architects are Messrs. Young and Mackenzie. Another gothic building of the same class, but in a much quieter, and we may perhaps say, weaker style, architecturally, is the new Seminary at Clapham for the Roman Catholic diocese of Southwark; this, though a large building, is more of the character of a residential college, and only accommodates about 70 inmates; a chapel forms a conspicuous portion of the design, which is by Mr. J. Crawley. The "St. Francis Home for Boys," at Shefford, Bedfordshire, is another Roman Catholic establishment, founded to provide for the education of 50 orphan boys; the building for it is a remarkably pretty and picturesque one, designed by Mr. S. J. Nicholl, in a domestic gothic style, freely treated, and combined with a chapel in ornate late gothic style; the residential portion has a modest and home-like expression very well in keeping with its object. Mr. A. W. Blomfield's design for a library in connection with Sion College, proposed to be built on the Thames Embankment, and which was illustrated by a beautiful drawing in the Royal Academy, will, if erected, prove a very picturesque addition to the architecture of the Embank-

ment, but it is yet only a proposal. The Academy architecture also included drawings for Memorial Halls and Schools at Dover (Mr. A. T. Taylor) ; West London School of Art (Mr. Edis) ; New Buildings for Magdalen College, Oxford (Messrs. Bodley and Garner) ; Boys' High School, Plymouth (Messrs. Paull and Bonella) ; New Slade Schools, University of London, forming a new north wing corresponding with the present south wing of University College, Gower Street (Professor Hayter Lewis) all presumably in progress or about to be commenced, so that the present activity of the country in regard to education would seem to be duly reflected in the architecture of the year.

The most important piece of work in domestic architecture which has been commenced during the year, has been the partial rebuilding of Clumber House, Worksop, the former seat of the old family of Holles, and now the property of the Duke of Newcastle's family. This house has grown from within outwards, the house built in 1770 having been built so as to include part of an older and more unpretending building ; in a fire last year great part of the inner and older portion was burnt away, and now the second house is to form the basis of another addition, giving it a new centre and grand entrance in keeping with the portion of the second house which remains. The work has been commenced, but it is not yet known when or whether the carrying out of the entire scheme will be decided on. Another addition to an old English house is the case of Knoyle, Wiltshire, which has been nearly remodelled by Messrs. Carpenter and Ingelow ; in this case the original house had no architectural pretensions, and the work is architecturally a new design, a modification of the Elizabethan type of house, and is a very pleasing and picturesque building. The same architects have carried out a large rebuilding at Stoughton Grange, near Leicester, in a more decidedly Elizabethan style, but with points of originality in the details. Another principle in treating an old house which requires modernising has been illustrated in the case of Pirton Grange (Herts), where the original house, one of the few moated houses left in the country, has been left entirely untouched and the new one built at a little distance : the latter, of which Mr. Sorby is the architect, is in a style of late English gothic verging on Elizabethan. These examples serve to show that the taste for this late gothic domestic style, so peculiarly English, is not eradicated so far as country houses are concerned, though "Queen Anne" seems to be having it all

her own way in town houses. Other houses which have been in progress are Westwood Home, Sydenham (Mr. Pearson); a large and picturesque house at Sunninghill (Mr. Norman Shaw); Grafton Hall, Cheshire, a sixteenth-century house in course of restoration by Mr. John Birch; and among points in the interior treatment of houses may be mentioned "a library at Kensington" of which a beautiful water-colour drawing appeared in the Academy exhibition, showing a room very richly decorated in colour, by Mr. W. Burgess; and the decorations of the hall in the Arabic style in Sir F. Leighton's house at Holland Park, designed by Mr. Aitchison, and which were also illustrated by drawings at the Academy, showing the application of purely Arabic decoration to an apartment of an English house.

Two or three large Railway Terminus Hotels have been completed during the year. The St. Enoch Station and hotel at Glasgow, is a very large piece of work, a complete new terminal station with a great hotel across the entrance end, and the station offices flanking one side in the usual manner. Mr. Thomas Willson carried out the architectural portion of the work. The hotel is in gothic style, assimilating to late mediæval work in its general design, but with some specially modern feeling, which is happily almost inevitable in applying gothic architecture to such a peculiarly modern type of building. There is, however, nothing to characterise it as in any way distinct from other railway hotels, or even from hotels generally; and it may be observed that the fashion of building a hotel across the end of a terminal station nearly destroys the possibility of making anything like a special grand architectural effect out of a railway terminus. A great railway station presents really so much opportunity for special architectural effect on a grand scale, unlike anything that has been done in previous times, that it seems a pity, from an architectural point of view, to reduce it to a mere hotel with no marked character of any kind. A grand entrance to the station under the centre of the building, with arcades and vaulting, would go far to redeem this deficiency, and mark the building as the front of a railway station, with very fine effect combined with convenience in access and exit. The new railway hotel at Preston is a building of the secondary class of its kind, flanking what is in fact a large roadside station. Compared with railway architecture generally this hotel,

designed by Mr. Thomas Mitchell, is a very favourable specimen, very picturesque in appearance and grouping, in a domestic gothic style which has a much more inviting and hospitable appearance than the flaunting style of so many of the new railway hotels. The London and North-Western Railway Company have also recently completed their large addition to their Liverpool Station, whereby the size of the station is doubled, and it is now probably the largest provincial railway terminus in the kingdom; but of the architectural treatment of the front of the new part the less said the better.

Street architecture in London is progressing a good deal, as to quantity; as to quality, that in West London seems to have only two forms of development at present, either mere builder's architecture of the dullest and most formal description, or red brick houses, of which all the details are pretty much of one style, and that a bad one, the ornaments consisting mainly of festoons in terra-cotta, &c. The only satisfactory point about these new houses of this style is that they usually display very good workmanship. In the central portions of London more variety of taste and style is shown, architecture being less under the influence of fashion than in the West End. We find occasionally a new building in pure gothic style, others with more or less effective treatment of classic details. Of these latter a large block in Cheapside, Nos. 23 to 30, is conspicuous, and also another in Leadenhall Street, the latter somewhat too showy but undoubtedly rich in effect. The great outfitting establishment of Messrs. Silver, in this latter neighbourhood, is cleared away as if for an extensive re-building, the result of which we shall no doubt see in time. No. 106 Cheapside offers a specimen of a shop front, treated with much more refined ornament on classic models than is usually found applied to shops, though there is the old difficulty with shop architecture, the weakness and tenuity of the lower story, leaving the superstructure standing to all appearance on plate glass and a few slender window-bars cast in column shape. The new cavalry barracks at Knightsbridge have been completed, from the designs of the late Mr. T. W. Wyatt; the building is a neat and well finished one in red brick with stone dressings, but not certainly a very great ornament, nor quite equal to what might have been wished for in so very conspicuous a site on a principal thoroughfare into West London. "The Arcade," in Bond Street, con-

necting that thoroughfare by a covered way with Albemarle Street, is a new specimen of a method of arranging shops, which might be more used in large towns than it is. In London we have already the Burlington Arcade, which, however, is too narrow and too low for effect or for proper ventilation; these faults are remedied in the New Arcade, and the façades towards the two streets show an intention to do something effective, though they are rather coarse in taste, and it was a mistake to repeat the sculptural subjects, mechanically, in an exactly similar way at each end. Mr. Waterhouse has a building approaching completion in a conspicuous situation at the angle of Piccadilly and New Bond Street, in which a good deal of terra-cotta ornament is used, and which will be an agreeable addition to the street architecture of the neighbourhood. Fleet Street also shows some good new buildings, and there are likely to be more, for much of the street wants rebuilding, and it is impossible that the presence of the Law Courts at the end of the street should not exercise an effect in leading to more new building in its neighbourhood. The clearing out and proposed rebuilding of old Leadenhall Market is one of the most important building enterprises that has been initiated recently, but it is only in embryo at present.

A new Hospital for Women is in progress in the Fulham Road, a new building for an institution previously existing which had outgrown its original premises. Hospital building has not been very much on the move lately, but seeing how very old-fashioned and defective are some of the London hospitals, according to modern lights, it would seem that we ought to have a move in that direction before long. We may also mention, as an interesting fact in the year's architecture, the rebuilding of the old "Jerusalem Coffee House," near Cornhill, on the site which has been long occupied by a coffee-house of that name, one having been burned in the Great Fire, and rebuilt afterwards. The architect of the new edition of the "Jerusalem" is Mr. Bassett Keeling, who in this and one or two other city buildings has well combined good taste with practical considerations as to light and air. A house in Bucklersbury, designed by Mr. Whichcord, is also worth attention as an effort to keep up in a new building, a reminiscence of the feeling of the old London architecture of the district.

A monument has been designed by an English architect, Mr. G. R. Robson, to be erected at Chislehurst, in memory of the

Prince Imperial; and conversely we may mention the erection in the cemetery of Auteuil at Paris, of a monument to a gifted English architect, F. P. Cockerell. His lamented death took place during the previous year, and certainly should have been commented on in our last year's notes, for the loss was no light one, and we may go back to the mention of him, apropos of his monument, as one who in a special degree represented the best side of the profession, being emphatically both an artist and a gentleman, and in every respect one calculated to command, as he did, the liking and respect of all who came in contact with him, and young enough at the time of his death to have had the chance of doing much admirable work had he lived. The monument of which we spoke, and which was placed over his tomb in the early part of the present year, was, curiously enough, his own design, a copy of a design for a monument at Algiers which he had made, and which had been executed in Paris, where the drawings were still in the hands of the mason.* During the present year, three eminent and successful English architects have died. The strongest man of these undoubtedly, and the one who will be most remembered, was Professor E. M. Barry, the son of Sir Charles Ba ry. His death took place under very peculiar circumstances, at a meeting of the Council of the Royal Academy, of which he was Treasurer, when he was taken suddenly ill, and died almost immediately, while addressing the Council on the business of the meeting. As an architect, Mr. Barry had less success than he deserved. He had, indeed, a very large practice, and enjoyed the full confidence and esteem of a large circle of clients, but he was ambitious of leaving a great work behind him, and twice the chance of doing so was most provokingly and in one case unjustly snatched from him. He was returned by the judges in the Law Courts competition as first in *plan*, while Mr. Street was first in *design*, and as plan counted highest he should in fairness have had his name connected with the building as leading architect; he was appoined joint architect with Mr. Street, and was in no long time ousted from this through (apparently) the influence of the friends of the latter with the Government. He was then promised the proposed new National Gallery as a compensation, and made for this a very grand design, which if carried out would have given him nearly as much fame as the Houses of Parliament brought to his father,

* An engraving of this monument will be found in the *Builder* for Jan. 10th, 1880.

and would have been a greater ornament to London than any building that has been erected since that great modern gothic structure. But this also, in some freak of governmental economy, was countermanded, and he had only the designing of the new rooms at the back, without the chance of building any grand exterior. There is little doubt that these disappointments told so far on his health as to hasten his death. Mr. Barry was Professor of Architecture at the Royal Academy, and his lectures there were very able critical treatises on the art. Among his principal works are Crewe Hall (rebuilt after a fire), the Covent Garden Opera House, the two hotels at Cannon Street and Charing Cross Stations, the Art-Union House in the Strand, the Birmingham and Midland Institute, &c., &c. Mr. Barry was hardly to be called an architect of real genius (his father was perhaps the last English architect who could be called so), but he showed great good taste and knowledge of the Renaissance style, and had the great recommendation of being a thoroughly practical architect, satisfied with nothing less than the best workmanship in everything which was carried out under his hands; and all his buildings, we believe, gave practical satisfaction to those who used or lived in them.

Mr. Thomas Henry Wyatt, who had also a very large practice as an architect, died on the 5th of August last. He was one of those men who establish success not by genius, but by the sometimes (in a sense) more valuable qualities of energy, uprightness, and socially agreeable character. He was a very hard worker, getting through a great deal of work in a wonderfully short time; and the confidence which was felt in his professional and private character may be judged from the fact that he was honorary architect to the Institution of Civil Engineers, the Athenæum Club, and the Middlesex Hospital, consulting architect to the Commissioners in Lunacy, the Incorporated Society for Church Building, and the Salisbury Church Building Society, and President of the Architects' Benevolent Society. He was one of the best Presidents the Institute of Architects ever had, conspicuous at their meetings and receptions by his tall commanding figure, and dignified and courteous manner. He was not an architect who ever produced or could have produced what would be called a great building, but he was a man greatly liked and respected both in his private and professional capacity. His best building is perhaps the church at Wilton, built for Lord Herbert. The quantity of work carried out under his directions was very

large; the Liverpool Exchange may be mentioned as one of the most important specimens.

Mr. Benjamin Ferrey, who died August 22nd, was one of the architects whose career was associated a good deal with the modern gothic revival. He was one, along with Pugin and others, of the band of young enthusiasts who went about sketching old churches, and indoctrinating the public with correct views on mediæval architecture. He did not make the fame out of the gothic movement which Scott made out of it (perhaps only one man in a movement of that kind can make such a success), but he laid early the foundation of a good practice, and the length of the list of his works when placed together seems surprising to those who knew his remarkably quiet manner and character, quite the reverse of what is called pushing or enterprising. He had a considerable share of the church-building of his day, and also the restoration of Wells Cathedral (one of the most judicious and thoroughly conservative cathedral restorations that has been carried out), and the partial restoration of Christ Church, Hants, and of Sherborne Minster, as well as of many smaller churches. He also built a large number of mansions, mostly in the gothic style, and distinguished more by a quiet appropriateness and finish than by any attempt at specially picturesque effect. Quiet and retiring in manner, he nevertheless always held his place among his professional brethren, and enjoyed general respect and esteem. He wrote the life of his former fellow-student Pugin—a very fair specimen of architectural biography.

This is a large obituary account for the profession for one year, considering the prominent place occupied by all the men whose death has been mentioned. It is satisfactory to think that whatever differences of opinion there might be as to their architectural tastes, they all upheld the standard of exceptionally high professional integrity, in which quality at all events they may be commended as examples to the younger generation who come after them.

THE EXHIBITIONS OF PICTURES IN 1880.

THE exhibitions of the year were not fruitful in great works. Nothing was shown which will make 1880 memorable in the annals of English art. There was no picture which commanded general attention; no decisive evidence of original power, elevation of purpose, poetic sensibility, activity of imagination; but, on the other hand, there was much good work, honest effort, careful study; much, in a word, that may ripen into something better and higher,—if not the highest in the region of the possible.

More than usual was the Royal Academy's the representative exhibition of the year. The others were nowhere in the comparison. To some extent they were supplementary to the Academy, but together they did not fill the void that exhibition left. Year by year it becomes more evident that, in the interest of art, and equally in the interest of public taste and artistic progress, some other, more impartial and more liberal arrangement, is required for the selection and exhibition of paintings. Passing through the rooms of the Academy, with the recollection of the hundreds of pictures which have this year been rejected, many of them works which occupied the earnest toil of ardent and hopeful minds and hands during the best hours of the past year, and the knowledge that rejection means always suffering and often ruin, it is impossible not to feel that there ought to be some more comprehensive scheme for the exhibition of works of art, affording the aspirant a better chance of bringing his claims before the bar of public judgment.

The Academy was not rich this year in works of "High Art." Religious pictures were very few and not very good. Herbert's "Christmas Eve at Bethlehem" (No. 269), Goodall's "Hannah's Vow" (339), and Cope's "Good Shepherd" (962), pretty well exhaust the list of Academicians' works, and those of outsiders were hardly more numerous and not more valuable. Herbert's picture was perhaps the best of the three, and clever; but it was the hard, cold, realistic, and prosaic representation of the scene as it might take place any Christmas Eve of the present century; and we cannot bring ourselves to believe that such is the right mode of dealing with a scriptural theme. It may be true, but it is not edifying.

We turn willingly to pictures of the classical and poetical order, and give, as is his due, the premier place to the President. Sir

Frederick Leighton had no great work here, but several that are full of charm and grace. They are light in key, "decorative" in character, soft and smooth in finish, elegant rather than strong. But they are all they aim to be, and very pretty pieces of art-workmanship. There is more of human interest in a "Sister's Kiss" (142), than in either of the others. The elder sister is clad in light antique garb, and almost statuesque in pose, but while graceful as ancient Grecian maiden she is sweet and loving as any homely English girl. Consorting well with the grace of the theme is the tender harmony of the colouring and the delicacy of the handling—fitting enough here, but dangerous when applied to canvases of larger size and subjects of more ambitious scope. In "The Light of the Harem" (256), Sir Frederick has displayed equal skill, with somewhat less refinement—the voluptuousness incident to the subject being a little too much insisted on. The others, "Iostephane" (204), "Crenaia" (655), and "Psamathe" (614) are single figures, very delicately and prettily painted, but in fact little more than finished Academic studies—the last a fair lady very daintily drawn and delicately coloured, sitting by the sandy shore with her naked back turned to the spectator. Belonging to the same category is Mr. Poynter's more ambitious work (250), the "Visit to Æsculapius" of Venus, when "a bramble-bush had pricked her in the foot." Venus, with the attendant Graces, is entirely undraped; the Divine Healer, seated beneath an open porch, is clothed in an ample robe of red, while behind him stands a maiden in purple vestment holding a casket of the ointment he is about to apply to the wounded foot; on the right is a fountain from which a girl is drawing water; in the background is a classic building, overshadowed by a grove of majestic trees. The picture is of large size (8 feet by 6) learnedly composed, admirably drawn, and finished throughout with extreme care and delicacy. As is the manner of the painter, the colour is somewhat pale, the surface smooth. Venus and the Graces (rather small for the size of the canvas), occupy the centre of the composition, are, as we have said, undraped, but they are "clothed with innocence" and the purest who beholds them can take no offence. As an Academic composition it is admirable. But you feel that it *is* an Academic composition; the result of study and research, not the outcome of a spontaneous impulse. It lacks the *naïveté* and *abandon* of a Greek idyll, or the hearty vitality with which that old semi-

pagan Titian would have endowed such a vision. But a picture of this kind is seen to little advantage amid the strongly coloured surroundings of a crowded exhibition, and in a more fitting situation its grace, refinement, and delicate harmonies of colour will no doubt be more appreciated, and the painter's purpose be better understood. That this more suitable place will now be provided for it may be assumed, it having been purchased by the Royal Academy under the terms of the Chantrey bequest.

Midway between the regions of reality and the pure ideal may be placed such pictures as Mr. Alma Tadema's "Spring Festival" (176), the motive derived from the Georgics of Virgil, and "Not at Home" (195) which treats of ancient Rome's domestic life and habits. For a painter like Alma Tadema, however, these are but trifles. More worthy of his pencil was the "Fredegonda," Queen of the Visigoths, watching from her chamber the espousals of her husband Chilperic, King of the Franks, to Galeswinthe, the Arian Visigothic princess (328). The bridal is shown in the distance through the open window, from which the discarded Queen, concealed by a heavy curtain, is watching the ceremony. The Fredegonda shows Mr. Alma Tadema to be as much a master in the higher qualities of the art as in its technicalities. On a canvas of moderate size (5 feet by 4) the story is clearly and fully told. Fredegonda fills the chief space in the picture as in the story, and on her the interest and sympathy of the spectator are concentrated. Attitude and expression bespeak the strong-hearted woman in the wronged and forsaken wife. The pageant of the espousal, distinctly and even minutely detailed in the distance, the mirror in hand, the near couch and tiger-skin, the jewels and woman's gear, represented all with marvellous skill and archaic truth and exactness, much as they delight, and even surprise one who takes the trouble to examine them, never for a moment draw the attention away from Fredegonda and her sorrow. It may not be a better painted picture than we have been accustomed to receive from Mr. Alma Tadema of late, but it has more of purpose in it, and a higher promise.

Incidents more or less closely connected with English history, have attracted the attention of our younger as well as of our elder artists in a much greater degree than usual. This is as it should be. Painters are always most at home on their native soil, and historical composition is a branch of art which no school can neglect without certainty of rapid degeneration.

Happily, English history and the biography of those who have helped to make that history what it is, offer a supply of events, incidents, and anecdotes so abundant that every painter who applies to them may, without timidly following in his predecessors' footsteps, or danger of trespassing on his neighbour's manor, find ample matter for all his requirements. The most popular picture in this line (and the least English in character) was Mr. Orchardson's capital work entitled "On board H.M.S. 'Bellerophon,' July 23rd, 1815" (No. 262), a representation of Napoleon I, on the morning of his surrender, standing on the deck of the English man-of-war, and gazing fixedly and sadly on the swiftly receding shores of the France he so long ruled and glorified, but is never to behold again. The moral of a great and stormy life is summed up in that hour and incident, and Mr. Orchardson has very fairly suggested if he has not fully told its import. That the technical merits of the picture are high, is attested by the fact of its having been purchased by the Royal Academy. It has been objected that Napoleon did not stand on the deck of the "Bellerophon" in boots and spurs, and his suite it is said could never have so preserved their equilibrium in a rolling sea. It may be so; and Frenchmen do not at once put on sea-legs. But the suite are well and expressively grouped. Their chief is still the hero, though discrowned, and the incident is related vividly, impressively, and with all the appearance of probability. Minute inaccuracies, if such there are, may be overlooked where the general result is so excellent.

Were Englishmen as fond as their neighbours of the records of military glory, the pre-eminence given to the Napoleon would probably have been awarded to the two pictures which illustrate the victories of Marlborough—(No. 453), "Blenheim," by R. C. Woodville, and (No. 459), "Marlborough after the Battle of Ramilies," by Ernest Crofts, A.R.A. The former is the more stirring incident of the two, as it represents Marlborough at the head of his cavalry about to make the final charge which determined the fate of the battle. And it is a well and carefully painted picture, and one that might well have been selected for purchase by the Academy. Mr. Crofts' is also a good picture, though hardly so interesting. The moment chosen is when the trophies of the great victory are laid at the feet of the conqueror. The subject is skilfully treated, but the pride and glory of the triumph do not somehow make themselves felt.

Far more is made of a humbler occurrence in the life of

another of England's heroes. In "The Armada in Sight" (948), Mr. Seymour Lucas leaves the Spanish fleet to the imagination, and gives visible form only to the anecdote which tells how, when the news came that the fleet had been sighted off the Lizard, Drake was on the Hoe at Plymouth playing at bowls with his officers. They were for making instant preparations to put to sea, but the gallant old admiral laughingly checked them, saying "Let the match go on, there is plenty of time to win the game and beat the Spaniards too." Mr. Lucas has seized the exact moment to tell the story most effectively. The beacon-flame in the background indicates the recent arrival of the intelligence. The sturdy old chief standing slightly apart—the central figure of the group, though not the central figure of the picture—is stooping forward about to deliver his bowl, and putting gently back with his left hand—his grim weather-beaten face lighted with a pleasant smile—the officer who is urging the necessity for immediate action. The instant effect of their admiral's coolness and confidence is showing itself on the countenances and bearing of those around him, all feel instinctively that in such hands the match may safely be played out without detriment to the more serious encounter which is to follow. The anecdote, interesting in itself, is clearly and vigorously told, the expressions of the several actors are characteristically rendered, the composition is good, and the colouring bright and true. Altogether, it is a decided advance on the young artist's previous works, excellent as some of them have been. Objection has been taken to the gaiety and newness of the costumes, but Elizabeth's subjects were fond of gay dresses, and her naval officers may have donned new and showy clothes for the occasion. There was no prim naval uniform in those days—happily for painters.

Other subjects from English history were Wynfield's "Elizabeth at Traitors' Gate" (573), a nicely painted and interesting picture; the "Trial of Queen Katherine" (985), by Laslett Pott, soberly rendered, yet with considerable dramatic power; "The Landing of Henry V. at Dover after Agincourt" (482), by R. Hillingford; Gow's pathetic version of "The Last Days of Edward VI." (490); and Sir John Gilbert's vigorous, if somewhat too dramatic scene from the Second Part of King Henry VI., where "in an inner chamber, Glo'ster is discovered dead in his bed, Warwick and others standing by it," while Henry overwhelmed with horror and despair stands hesitating in the fore-

ground, and the guilty Queen shows more signs of remorse than Shakspeare credits her with. Two other paintings claim in this connection a paragraph; representations of the earliest, and one of the most recent events in the reign of Victoria. "Victoria Regina" (217), by H. T. Wells, R.A., represents the young Queen newly aroused from her sleep on the morning of the 20th of June, 1837—"in a loose white nightgown and shawl, her night-cap thrown off, her hair falling upon her shoulders, her feet in slippers, tears in her eyes, but perfectly collected and dignified," —receiving the Archbishop of Canterbury and Lord Conyngham, the Chamberlain, who have come to announce the decease of William IV, and her own accession to the throne. The event and the circumstances attending it are interesting, and whatever Mr. Wells paints is sure of manly and noble treatment. But for this incident, in itself as simple as it is touching, he has taken too large a canvas (8 feet by 6); on one of half the size it would have been twice as impressive. In the other picture (625), by Mr. Prinsep, "The Imperial Assemblage held at Delhi, by the Viceroy, Lord Lytton, and attended by the principal Chiefs of the Indian Empire," a picture painted for presentation "by the People of India to Her Majesty the Queen in commemoration of the assumption by Her Majesty of the title of Empress of India;" the dimensions (it is 27 feet long and 10 feet high) are positively alarming. The wonder is what room Her Majesty will find capacious enough to hang it in. At the Academy it occupied the entire end of one of the large galleries. It is said to have occupied Mr. Prinsep two years in painting, besides the time spent in making the preliminary studies in India, and in voyaging there and back.

The passion for scenes and circumstances of the French revolutionary epoch appears to be dying out. Pictures of this class, some feeble and others foolish, and a few,—though very few—not quite devoid of intelligence, still find places on the Academy walls, but it is a comfort to believe that the race is becoming extinct. The best of the class this year was Marcus Stone's "Amour ou Patrie" (282), but it was a sad declension from the work of former years.

Again Mr. F. Goodall takes us to the dusty plains and heated atmosphere of Egypt, "Egyptian Pastoral" (402), "Moving to fresh Pastures" (224), "Time of the Overflow, Egypt" (334). Always Egypt. It is really time Mr. Goodall moved to fresh pastures. A year or two more in Egypt and he will become

(mentally) indurated as a mummy, dry as the remainder biscuit after a voyage. Mr. Long has sustained no harm as yet in the East, but even he may become enervated by too long dalliance with Assyrian damsels. His "Assyrian Captive" (210), is an excellent work and affords evidence of ample latent power, when it shall please him to exercise it in some hitherto untried field. Mr. Calderon's "Captives of his Bow and Spear" (211) is a clever artist-like production, effective and attractive, but not quite wholesome.

Domestic and homely subjects, scenes from the highways and byeways of every-day life, again preponderate amongst the figure pieces. Prettily and carefully painted many of them were, but as a whole wearisome. Rarely do we light upon an original conception, a bright fresh fancy, or bit of sharp shrewd observation. Subjects, like methods, run in grooves; the subject is chosen and the picture painted not as the result of strong personal inclination, impulse, or feeling, but because some one else has successfully handled the same or a similar subject. It is not so that great painters are made or good pictures painted, and it is a pity to see real artistic power wasted in this (artistically) unprofitable toil. If Mr. Clark (we are taking his "Hunger the best Sauce" (46), and the reading from St. Matthew (1440) as a text)—would moralize less, and not make all his ladies and gentlemen so strenuously benevolent, his peasant boys and girls so celestially amiable, and all so preternaturally clean, trim, and tidy, he might hope to fill Webster's vacant place or become our English Edouard Frère. What place the painter of the large coarse and vulgar picture entitled "Breach of Promise of Marriage" (307) expects to take, or why the hanging committee should have hung so prominently a thing so abominable we do not care to inquire.

Mr. Thomas Faed, if not at his best, was powerful in "From Hand to Mouth" (316) a sad picture of the shifts and scoffs of hapless poverty. But in this line we miss Fildes' vigorous pencil, as in history we missed the severe strength, science, and learning of Armitage, and as in home life we miss,—as a glance at Mr. Smallfield's clever "Old Actors" (1012), reminds us,—the always welcome quaintness and humour of Mr. Marks, who is too busy with his birds to spare time on post-boys, professors, or other featherless bipeds. Some of the younger men's pictures—Morris's "Sons of the Brave" (20) Yeames' "Finishing Touch" (39), Boughton's "Our Village"

(338), Glindoni's "Charge of Witchcraft," Stokes's "Sweetest Flower" (514), Burgess's "Professor and Pupil" (431), and Haynes Williams' "Stepmother" (534) showed observation, talent, industry, occasional humour, sometimes feeling, and sometimes its semblance, whilst Mr. Chevalier in a Polynesian "Race to Market" (115), disclosed a bright flash of humour and originality.

Portraiture was strong this year; Millais, who seems to have definitely adopted this as his principal line of practice, has taken unquestionably the first place as the painter of men. John Bright (322) is a fine manly portrait, a good and characteristic likeness, and admirably painted, hardly equal perhaps to the Gladstone of last year, but by far the best portrait we have seen of the member for Birmingham. Mr. Luther Holden is equally good and characteristic. In his female portraits it is in the dress rather than the face that Millais triumphs. In No. 430 he has represented with consummate skill one of the most hideous dresses that ever woman disfigured herself by wearing. In a generation or two, if it has not gone to the place towards which Horace Walpole tells us ancestral portraits have an inevitable tendency, it will be invaluable to the student of nineteenth-century female costume. Better even than his men are this artist's children. Here he has been studying Reynolds to great advantage, and he has almost attained to Sir Joshua's hitherto unapproached sweetness, playfulness, and grace, while he paints with a fuller pencil and we hope with more permanent pigments. "Catherine Stepney," (239) a charming little thing, with long golden hair and full open eyes, in a last-century black velvet frock reaching to the ground, daffodils in her hand, looking full at you with the sweetest air of innocent wonder, is very nearly the perfection of child painting; and the two sisters by the wood in the piece called "Cuckoo" (315), listening to "The wandering voice" is no less delightful. Mr. Millais had also a portrait of himself (218), painted for the Uffizi Gallery at Florence, in accordance with the capital rule of the Academy there, which requires that every member on election shall contribute his portrait to the gallery. Near it hung, for comparison and contrast, Mr. Watts' Portrait of himself (212), painted for the same collection, and to our thinking surpassing that of Millais as the portrait of a painter. Mr. Watts' Bishop of Exeter (270), we did not like so well, and in "The Dean's

Daughter" (4), he certainly failed to express the fascination ascribed to the famous beauty. Mr. Frank Holl was at his best in his portraits of the Registrar-General (392), Mr. Beck (123) and especially the Rev. Payne Crawford, and is evidently fast rising to the foremost rank in this branch of art. Mr. Sant had a capital Head of a Boy (358) and was fully equal to his old fame in Lady Cunliffe (5), and the Countess of Aberdeen (299); while in the full length of Henry Irving as Hamlet (416), Mr. Long produced the best male portrait we have yet seen from his pencil, and the best we have seen of the renowned actor. Wells had a genial likeness of the painter Cope (1447); Richmond one, doubtless faithful, of the Archbishop of Canterbury (268), and Bastian-Lepage one a little libellous (but a masterpiece of workmanship) of the Prince of Wales. We must add a word of commendation for Mr. Leslie's very charming children, Ida Combe (323), and Bessie (606); John Collier's unaffected likeness of Dr. W. B. Carpenter (455), and Barlow, the engineer (602); Ouless's Cardinal Newman (438), and the really brilliant portrait of Winifred Fish (388), a girl nursing her pug, by W. R. Symonds, of Ipswich—a name quite new to us—and we think we have said enough to show that in portraiture the Exhibition was stronger than it has been for many a year.

So too was it in familiar Landscape. In poetic and imaginative landscape Turner has found no successor, nor have any of our younger painters struck into any decidedly new path. Vicat Cole has been working to good purpose by the Thames, as have also several of our younger men. Mr. Cole's "Silver Thames" (393), "Thames Backwater" (15) and "Mist of the Morning" (1466) are as true as painting can be; but Mr. Cole must beware of monotony of colour. Mr. Halswelle has secured variety by depicting with singular vigour "The Flood on the Thames, 1879, above Pangbourne" (74), while in his "Deep and headlong River" (522), he showed that even in similar subjects he can vary his style. But storm and flood will not bear frequent repetition. Surrey brooks and commons vie in favour with the banks of the Thames, though John Linnell was not there this year to show their glowing hues. Most at home on the Surrey hills and heaths now is perhaps Frederick Walton, the truth of whose Surrey scenes no one who has rambled over that pleasant county will for a moment question. But he must not make too much of reeds and rushes

(529); they are attractive to the uninstructed, but the initiated know that they are easily imitated, and their imitation, except in a study, draws the painter away from the true purpose of art. T. J. Watson, Ernest Parton, Mark Fisher, and C. E. Johnson, had some exceedingly pleasing and workmanlike moors and mill-streams, home paddocks, and woodland vales, and E. H. Fahey did very well in "Going a Milking," though he did far better two or three years back "Among the Barley."

Of the grander landscapes the most striking was "Britannia's Realm" (387) by John Brett,—a wide expanse of ocean mottled over with brilliant hues, and multitudinous waves and ripples drawn with matchless skill and infinite patience. This remarkable work was purchased by the Royal Academy for the Chantrey collection, now rapidly growing and soon we hope to be open with the diploma pictures to public inspection. Mr. Brett's other great picture, "Sandy Shallows by the Sea-shore" (669) was less satisfactory, looking as though it had been painted in sections and not welded into a whole.

Mr. Hook was as bright and vigorous as ever in "King Baby" (59), "Home with the Tide" (66), and "Sea Pools" (261)—all of them beautiful: fresh rippling seas, hearty healthy sun-burnt lads and lasses, and delicious glimpses of distant landscape—but then we have seen them all year after year, and long for a change. As sombre as Hook's are luminous were the two landscapes contributed by Mr. A. W. Hunt, "Unto this last" (1508), and "Motes in the Sunbeam" (1413), both full of feeling, but the latter one of the most poetical landscapes and finest in colour in the Exhibition. Mr. Davis has this year secured the honour of a purchase by the Academy by his "Returning to the Fold" (255), a capital picture, though not the best he has painted. Mr. Davis holds the first place in this line and is not likely to be displaced, but Peter Graham ran a good second with his "Highland Drove."

Briton Riviere was very happy in two of his pictures, singularly unlike in style, "The Night Watch" (298), and "The Last Spoonful" (1051), and failed as decidedly in the third, "Endymion" (644). In "The Night Watch" the lions, prowling stealthily in the moonlight around the shadowy eastern temple are wonderfully true and well imagined; you almost hush to catch the soft fall of their cat-like feet. "The Last Spoonful" (1051), is a bit of sharp racy humour, with distinctive and various rendering of animal expression.

The Grosvenor Gallery was as usual a welcome supplement to the Royal Academy. It was more varied though hardly so representative as in former years; still there was the old pervading sentiment of super-refinement. You felt, as you sauntered through the gilded saloons and listened to the peculiar art-dialect of the *habitués* that you were in the atmosphere of sweetness and light, that before you was the latest phase of art fashion, and that you were while here safe from the contagion of philistinism. And when you became accustomed to the strangeness of tone and unreality of aspect you could not but recognise a certain depth of feeling and earnestness in the more important works, and unquestionable ability, amidst all the affectation, in the secondary and imitative. Burne Jones, though with only one picture, "The Golden Stairs" (120) was admittedly the hero of the display. The picture was remarkable in many ways. The style, we were semi-officially told, was "Mantagnesque"; but in none of Mantegna's designs that we ever saw did minstrel maidens take their pleasure so sadly. But this wearied look and lassitude of manner is a characteristic of the school and must be accepted along with its other characteristics. Whistler was not there, and there were fewer "symphonies" and "harmonies" and "arrangements" than we had been wont to meet with in the Grosvenor Gallery. There were, however, some works of serious purpose and great ability, Mr. W. B. Richmond's "Song of Miriam" (136) some 16 feet long and crowded with figures, and as a decorative work, the best he has painted; Mr. J. D. Linton's "Victorious" (57), one of half a dozen painted to decorate the panels of a dining room; Mr. Watts' life-size nude studies of "Daphne" (43), and "Psyche" (46); Walter Crane's "Truth and the Traveller" (111), a very able work despite the gaunt hermaphroditish naked Truth; and Mr. Strudwick's parcel pagan, parcel pietistic, but oddly clever "Marsyas" (50). There were some excellent portraits, notably Mr. Holl's H. J. Bushby (134), Richmond's Charles Darwin, Herkomer's Lord Stratford de Redcliffe, and others by Millais, Watts, and Collier—but these might as well have been on the walls of the Academy. There were also some good landscapes, especially Lawson's "August Moon" (20), a poetical idea admirably carried out, but needing a good light to see properly; Macbeth's "Flood in the Fens" (131), R. C. Minor's "Sundown" (126), Miss C. Montalba's "Santa Chiara" (155), and one or two by Mark Fisher, G. H. Boughton, and

David Carr; though in these last the landscapes are chiefly employed in strengthening the sentiment of the figures. Altogether, whilst we should hail with pleasure a little more comprehensiveness in the admissions to the Grosvenor Gallery, we should be sorry if it were to lose its distinctive tone. It is one of the most agreeable and suggestive, and in some respects the most instructive of the art exhibitions of the season.

The Society of British Artists was not worse perhaps, or not much worse than it has been for some years past. There were two or three good and some respectable pictures on the walls, but the exhibition as a whole was hopelessly bad. It has, however, long ceased to be in any sense representative of British Art, and with our limited space it would be idle to waste more words upon it. The Dudley Gallery is representative of a little coterie and had, as it generally has, some clever pictures by its members.

The Water Colour Galleries were better this year than of late, that of the old Society especially. But the superiority was chiefly in the way of more careful, more refined, and more tasteful work. There is no renewal of the old strength, freshness, and originality. Sweeter and daintier landscape drawing could hardly be desired than a good deal of that in the pleasant room in Pall Mall East. But whether home or foreign scenery it was for the most part familiar in selection, arrangement, colour, handling. The vigour and freshness, a little coarse perhaps, were found where they might not have been expected in the drawings of a foreigner, Otto Weber, recently settled among us. Our water-colour painters must bestir themselves if they would maintain the foremost place hitherto conceded to them in this department of art. The Gallery of the Society of Painters in Water Colours will always be a pleasant place to visit whilst it contains such dainty landscapes as those of Birket Foster, Fripp, Davidson, Naftel, Newton, Collingwood, Richardson, Francis Powell, and Clara Montalba; old-world sporting scenes like those of Frederick Tayler, and such coveted fruit and flowers as those of Mrs. Angell; but additional strength is wanting, particularly in the figure line.

The Institute of Painters in Water Colours was also strongest in landscape, but this year it gained by the acquisition of Mr. Boughton, who tells his quiet open-air stories and experiences even more efficiently in water colours than in oil, and Josef Israels, who with Tenniel, Bouvier, and Corbould agreeably break

the too great continuity of landscape. But the landscapes were many of them as charming as those of the old Society. Such were Mr. Hine's familiar sweeps of sunny downs, breezy coast scenes, and large view of "Ely Cathedral"; Warren's brilliant camera-like Woodlands; Mogford's Sea-shores, and Whymper's studies by "Moor and Mountain."

Not great work this year, certainly; but much that was very good, and very pleasant.

Always interesting and instructive, the Winter Exhibition of the Royal Academy was this year more instructive and more interesting than usual. For eleven years has the Academy continued without a break these winter exhibitions of works by the Old Masters and by deceased British artists, and so far, whilst each year's selection has been different in character as well as in individual examples, there has been no falling off in the value of the pictures contributed—a remarkable proof of the wealth of the country in such works.

The exhibition contained over two hundred and fifty paintings, many of them important works by great masters of nearly all the principal schools. The earlier and the later Italian schools were fairly represented; still better the schools of the Netherlands; there were many capital works by German painters; French painters like the Clouets (Janets), Watteau, and Poussin were there; and there was a goodly assemblage of our countrymen—Reynolds having 17 pictures, Gainsborough 9, Morland 5, Romney, Wilson, Bonington and Severn, 3 each, Turner 2, one being his exquisite "Somer Hill," and Hogarth, Etty, Callcott, Landseer, and others of lesser fame, one or more examples. But the distinctive feature was the special collection of the works of Holbein and his school. England is particularly rich in the works of this master—still richer in works bearing his name—but never before had so many of his unquestionably genuine works been brought together for leisurely study and comparison, alongside so many unduly ascribed to him. In such comparison the true merit of Holbein as a portrait painter was easily recognised, and the good fortune of his living in an age that produced so many personages of marked individuality of character—his rare instinct in fastening on specific feature, expression, and habit; discrimination of character; singular precision and delicacy of drawing; faculty in rendering variety, tone, texture, and colour of complexions; management of accessories; technical knowledge and manipulative skill.

In all there were thirty-six pictures bearing Holbein's name, and several more of "Holbein's School." These covered, or nearly covered, the twenty years of his life spent in England. Seven of the pictures were lent by the Queen, and were nearly all of exceptional value. But the choicest Holbein in the Academy was the Duke of Norfolk's matchless portrait of the Duchess of Milan—the lady whom Henry VIII asked to be his wife, but who begged to be excused, as she "had not a head to spare,"—a work in which all the characteristic excellencies of the master, when in the maturity of his power, seem to be combined. Other portraits—such, for example, as those of Archbishop Warham, Thomas Howard, Duke of Norfolk, Sir Henry and Lady Guildford, John Reskimer, Sir Brian Tuke, Sir Nicholas Carew, Derick Berck, and the other Merchant of the Steelyard, Edward VI. when a child, and Anton Fugger—were perhaps of greater interest for the persons represented, as studies of character or costume, for special parts or circumstances, but as a whole and for artistic affluence, this was the masterwork.

The Grosvenor Gallery also had a Winter Exhibition, not wanting in good old pictures and charming modern studies, but noteworthy chiefly for a collection of some sixty paintings in water-colours, by living Dutch Artists. These, however, lie outside our bounds, and we have not space to comment on the general collection.

Mr. Frith exhibited in the King Street Gallery a series of five paintings under the title of "The Race for Wealth," a companion series to his "Road to Ruin," exhibited at the Academy in 1878. Like that, it was intended to rebuke a great social evil. Serious in purpose, carefully thought out, and in its manner, excellently painted, such a work—the work too of a painter who has been for more than 40 years before the public, always doing his best—claims respectful recognition. And whilst we regret that he thus directly challenges comparison with Hogarth, we gladly close these notes with a word of hearty commendation of the veteran's latest, and, in some respects, greatest effort.

SCIENCE OF THE YEAR 1879-1880.

As in former years, only those scientific discoveries and inventions are selected for description or mention in this article of the "Companion to the British Almanac," which are likely to interest, and are capable of being made intelligible to, the general reader. Every year the quantity of material from which selection has to be made grows larger, and the difficulty of eliminating from the record what is not likely to be suited to a popular narrative becomes greater. For this reason, if any reader should fail in meeting here with what perhaps he may have expected to find recorded, it is hoped that the omission will be treated with indulgence. An account of the principal scientific works that have been published during the year, as well as a short obituary of the most eminent discoverers and investigators who have passed from among us, might well find a place in such an account as this professes to be, but it is feared that they would extend the limits of this article far beyond the space that can be allotted to it.

Astronomy.

With the exception of the great comet, which during the early part of the year must have formed a magnificent object in the heavens of the southern hemisphere, there has been no great astronomical phenomenon likely to interest ordinary observers. Astronomers, however, have not on that account intermitted their labours, and the progress of this branch of science has been no less steady and continuous than in former years.

New Minor Planets.—After the article on the Science of the Year 1878–1879, in the preceding volume of the "British Almanac," was written, and before the year had closed, no less than nine of these heavenly bodies were registered among the discoveries of the year, bringing the number of planetoids recorded as in existence up to 211. This year the new minor planets added to the list are as yet only seven in number, so that the total of all these heavenly bodies up to the present known to be in existence amounts to 218. The list given last year contained some trifling inaccuracies; a corrected list of all the minor planets discovered last year, as well as of those of this year, with their discoverers, the date and place of their

discovery, and their names, so far as these can be ascertained, is given below :—

No.	Discoverer.	Place.	Date.	Name.
			1879.	
192	Palisa	Pola	February 17	Nausikaa.
193	Coggia	Marseilles	,, 28	Ambrosia.
194	Peters	Clinton, New York ..	March 22	Procne.
195	Palisa	Pola	April 28	Euryclea.
196	Peters	Clinton, New York ..	May 17	Philomela.
197	Palisa	Pola	,, 21	Arete.
198	Borrelly	Marseilles	June 13	Ampella.
199	Peters	Clinton. New York ..	July 9	Byblis.
200	,, ...	,, ..	,, 12	Dynamene.
201	Palisa	Pola	August 7	Penelope.
202	Peters	Clinton, New York ..	September 23	Chryseis.
203	,, ...	,, ..	,, 27	Pompeia.
204	Palisa	Pola	October 8	Callisto.
205	,, ...	,, ...	,, 13	
206	Peters	Clinton, New York ..	,, 15	Hersilia.
207	Palisa	Pola	,, 17	
208	,, ...	,, ...	,, 21	
209	Peters	Clinton, New York ..	,, 22	Dido.
210	Palisa	Pola	November 12	
211	,, ...	,, ...	December 10	
			1880.	
212	,, ...	,, ...	February 6	
213	Peters	Clinton, New York ..	,, 18	Lilæa.
214	Palisa	Pola	March 1	
215	Knorre	Berlin	,, 27	
216	Palisa	Pola	April 10	
217	Coggia	Marseilles	August 10	
218	Palisa	Pola	September 4	

Possibly, as the nights get longer, still further discoveries may be made in this direction before the year comes to a close, and the month of October in the autumn of 1880 be not less rich in the discovery of new minor planets than it was in that of 1879. Of all these bodies known up to the present date, Professor Peters, of Clinton, New York, is credited with the detection of no less than forty-four.

If the list of the small planets continues to increase so rapidly and largely, it might almost be thought that astronomers would prefer to run the risk of losing all count of them. As it is, enormous labour must be entailed, as each new planetoid is discovered, by the necessary comparison of the elements of its orbit with those of its previously known companions. When announcing the appearance of a new planet, an observer must for some time be in doubt whether the object he has seen be not merely an old friend already described by one of his fellow-workers.

It must be noted here that the three small planets Nos. 173

174, and 179, mentioned in previous "Companions" as having been discovered by Professor Watson, of Ann Arbor Observatory, in Michigan, U.S.A., have been named by their discoverer respectively *Phœdra*, *Andromache*, and *Clytemnestra*.

Nebulæ.—A new nebula was discovered by Dr. Tempel on the 19th September of last year; he describes it as having a central glimmer, as if from minute stars, and its brightness as nearly equal to that of those which Sir W. Herschel includes among his second class nebulæ. This remark as to its brightness seems to suggest the idea of its being variable, as it is unlikely that so conspicuous an object should have remained unknown in European latitudes for any length of time.

Later in the year M. Bloch, at Odessa, detected two nebulæ in the constellation Eridanus, which are not mentioned in Sir J. Herschel's catalogue. Both are described as of considerable brightness, and one of them seems to have as large a diameter as 5′.

On the night of the 14th November, 1879, the Rev. T. W. Webb letected a gaseous nebula in the constellation Cygnus, which, on comparison, seems to have been catalogued by Argelander as a star No. 4,004. In a powerful spectroscope it gave the three bright lines, which, according to D'Arrest, are characteristic of a planetary, or, more correctly speaking, gaseous nebula.

On the evenings of the 13th and 14th July last, two more of these mysterious bodies were discovered at the Harvard College Observatory; they are described as very minute objects, only to be distinguished from stars by the character of their spectra. They were found by means of a 15-inch telescope, in which a direct vision prism had been inserted between the objective and eye-piece. Such an arrangement enables the observer to recognize immediately a planetary nebula, as it is seen in the instrument as a bright point, while a star has the appearance of a coloured line of light.

Comets of the Year.—Two comets are expected this year, though one of them at least will probably only become visible early in January next. The only known comet of short period, which will be in perihelion during the year 1880, is that discovered by Winnecke in March, 1858. It was subsequently found to be identical with the third comet of 1819, detected by Pons at Marseilles, having in the interval completed seven revolutions. Thus, with a period of rather more than $5\frac{1}{2}$ years, it should have been seen again in 1863, but its track was in that year in a part

of the heavens extremely unfavourable for observation. At the next return, however, in 1868, and again in 1875, it was well observed. Its next perihelion passage should fall at the beginning of December next, but its position will then also render it difficult of observation; its track will be such that it will probably not be in a favourable place for being seen until late in January, but at that date the intensity of light will be very small.

Faye's comet, first discovered in 1843, will arrive at its least distance from the earth on the 3rd October next, but does not attain its greatest brightness until the middle of the month; its perihelion passage takes place on the 22nd January, 1881. It will, however, at no time be a very brilliant object, for its brightness is now much less than that at the time when it was first seen by M. Faye; indeed it is not expected to exhibit the same degree of brightness as on that occasion until its return after three revolutions in 1903.

On the 5th February of this year, Dr. Gould, who is in charge of the National Observatory of the Argentine Confederation at Cordoba, telegraphed to Professor Peters at Kiel:—"Great comet passing sun northwards." From subsequent information it appears that the tail of this comet was seen at the Cape of Good Hope on the 1st February, and on the 9th, Mr. Gill, Her Majesty's Astronomer at Capetown, was able to see the nucleus as well, though it was so far down on the horizon as to be scarcely distinguishable in the sea haze. The tail, however, must have been for the short time it was visible a grand object in the southern heavens, extending as it did over nearly 100°. Astronomers in the northern hemisphere began anxiously to look forward for the appearance of this magnificent stranger north of the equator, but it soon appeared that at the time of its first being discovered it had already passed the perihelion, and was leaving the sun and flying off into space with intense velocity. By the time, therefore, that it should have shown in the northern sky it had already become so faint as to be perfectly invisible. Subsequent calculation and comparison of the elements of its motion give good reason for believing that this comet is identical with the great comet of 1843, one of the most magnificent of heavenly objects which have appeared within present memory; that is, the comets of 1843 and 1880 are different apparitions of the same body, with a period of about seventeen years.

Early in April, 1880, telegrams were received in Europe of the discovery, on the 6th of that month, of a new comet by Mr. Schäberle, at the Ann Arbor Observatory, Michigan, U.S.A. The same body was seen, a few days afterwards, and carefully observed on several successive nights, by MM. Henry and Bigourdan, at Paris. It is described as having a nucleus equal to a star of about the eleventh magnitude, with a small fan-shaped tail of 3′ or 4′. On or about the 1st of July it passed through perihelion, and for some weeks before and after that date it was invisible, owing to its proximity to the sun's place. No notice has, however, appeared of its having been since seen, but it is expected to arrive at its least distance from the earth early in November, at the same time attaining its greatest intensity of light.

Comet III, of 1880, was detected by Mr. Lewis Swift, on the 11th August, though, owing to some uncertainty as to the real character of his discovery, several days elapsed before he made it public. What he first saw was a small nebulous object, but as the sky immediately afterwards clouded over he was unable to examine it further ; when, on the 17th, the sky was again clear, he was unable to find it. No announcement has been received of this comet having been seen by any other observer.

A fourth comet was discovered on the evening of the 29th September at Strassburg by Dr. Harting ; it was then about 10° north of Arcturus, and was rather bright, but the intensity of its light seemed to be rapidly diminishing. It was afterwards seen for a few seconds between clouds at the Royal Observatory, Greenwich, and it was also observed by Mr. Talmage at Mr. Barclay's observatory, Leyton, on the 5th October ; the latter observer describes it as very bright with a long tail.

The Red Spot on Jupiter.—In the beginning of the summer of 1879, Dr. O. Lohse, of the Physical Observatory at Potsdam, called attention to a vermilion-coloured spot on the surface of the planet Jupiter. This spot has since then become a familiar object to astronomers. It is situated in the northern hemisphere of the planet, and is elliptical in shape. Some notion of its size may be obtained from the fact that it occupies as large a proportion of the area of Jupiter's surface as Europe does of that of the earth. From comparisons of different observations, there seems reason to believe that the spot is moving slowly round the planet. M. Niesten, of the Royal Observatory of Brussels, who has watched the spot carefully for some time, is of opinion that

it is surrounded by a bright ring of a brilliant white hue. He also thinks that it is identical with the spot seen and described by Cassini years ago, and that it is probably concealed from observers for lengthened periods by an atmosphere of greater or less density. No trustworthy explanation of the nature of the phenomenon, however, has yet been given.

An Ultra-Neptunian Planet.—It has been for some time known that there is a peculiar relation between the aphelion distances of certain periodical comets and the mean distance of the planet Neptune, and some astronomers have supposed that these comets have been introduced into the solar system by the attraction of that planet. For this reason it has also been suggested that there may be planets revolving in orbits outside that of Neptune. At the end of April of this year, Professor George Forbes, of Anderson's University, Glasgow, announced that he believed a planet to exist at a certain definite spot in the heavens, which he indicated, moving in an orbit whose mean distance was one hundred times that of the earth; the mean distance of Neptune is, as is well known, rather more than thirty times that of the earth. In a subsequent publication, Mr. Forbes entered into the details of his investigation, which appears to have been one of a highly ingenious character. He goes further, and inquires whether there are any stars missing from the catalogue, which may be really observations of his supposed planet. He finds such a star in No. 894 of the "Greenwich First Seven-Year Catalogue," which was observed twice in the year 1857, but has not been seen since. However, a comparison of the probable magnitude of this star with that of a heavenly object so far outside Neptune as Forbes supposes the new planet to be, renders the truth of this conjecture extremely improbable. In fact, unless the extra-Neptunian planet be much larger than either Neptune or Uranus, its discovery, even with the most powerful telescopes, seems out of the question.

Geography.

The record of geographical discovery for the past year contains nothing of a very sensational character; good work is, however, being done quietly in every quarter of the globe, and our knowledge of unknown lands is being extended and consolidated. In this work explorers of all nationalities are taking part, many of them, unfortunately, sacrificing their lives in the cause of science.

East Africa.—The most important expedition which has been brought to a successful termination during the year is the one sent out by the Committee of the African Exploration Fund of the Royal Geographical Society. In last year's "Companion" the route of this expedition was traced to *Berobero* or *Behobeho*, situated in the country between the Ruaha and Uranga rivers, some distance above the point where they unite to form the Lufigi: it was at this place that the leader, Mr. Keith Johnston, fell a victim to the unhealthiness of the climate. Unchecked by the melancholy event, the exploring party pushed on, under the direction of Mr. Joseph Thomson, the second in command, and on the 22nd September, 1879, arrived at Mbungo, on the northern shore of Lake Nyassa. Having rested for a few days, Mr. Thomson again left the lake to accomplish the second portion of his undertaking. After a journey of 250 miles, over a tolerably level country, and among natives who were comparatively friendly, he reached Pambete, at the southern end of Lake Tanganyika, on the 8th November. By a nearly parallel route, Mr. James Stewart, of the Livingstonia Mission, had almost simultaneously with Mr. Thomson's party (he arrived at Pambete only a day later) also traversed the country lying between the lakes Nyassa and Tanganyika; the knowledge thus acquired by the two explorers cannot fail of being of the utmost service to the cause of geographical science in this part of Africa. One of the most interesting of Mr. Thomson's discoveries in this region is the existence of a huge spring, in an angle between the Ulungu and Uwembe mountains, which gives rise to both the main tributaries of the Lofu and Luguvu rivers. At a quarter of a mile's distance below the spring, the Luguvu has already a breadth of twelve and a depth of five feet.

From Pambete Mr. Thomson travelled, over very rough ground, through the high hills on the south-western shore of Tanganyika, and on Christmas morning arrived at Kasenge, where he sighted the Lukuga creek, which he found to be a rapid river, flowing westward in a full stream to join the Congo. It will be recollected that Cameron had found the Lukuga to be choked with mud and papyrus, some miles below its outlet from the lake, and that Stanley, who subsequently visited the spot, and could detect no sign of a current, came to the conclusion that Tanganyika was not as yet drained in this direction. In the year preceding Thomson's visit, however, Mr. E. C. Hore, of the London Missionary Society's station at Kawele, near Ujiji, had

observed that the barrier, mentioned by Cameron, had been swept away, and the Lukuga was flowing out of the lake in a large and rapid stream.

On the 19th January, 1880, Mr. Thomson left Kasenge and followed the course of the Lukuga for several days, intending to strike south and to reach Iendwe, where he left his camp and the principal part of his followers, by a circuit across the Urua and Uemba. In this attempt he was foiled by the hostility of the natives, so that he was compelled to return to the lake by the way he came, arriving at Iendwe on the 7th April. His projected route from Iendwe to Kilwa on the coast he found closed by a war between the native tribes, but he was able to settle the problem of the hitherto unvisited Lake Hikwa, and from thence he fell into the regular route to Bagamoyo by way of Unyanyembe, and finally reached Zanzibar, with all his men, on the 16th July.

The very valuable results accomplished by this expedition can scarcely be overrated. A new route has been discovered from Dar-es-Salaam to the northern end of Lake Nyassa, the unknown tract of country between lakes Nyassa and Tanganyika has been opened up, the question of the outflow of Tanganyika has been settled, and finally the position of Hikwa, a lake which has long puzzled geographers, has been determined.

The explorers constituting the first expedition of the Belgian International Society, under Captain Cambier, arrived at Tanganyika on the 16th August, 1879, and have made arrangements for the establishment of a station at Karema, on the eastern side of the lake, about 150 miles south of Ujiji. It is intended that this portion of the expedition shall push on to Nyangwe, on the Lualaba, there to join Mr. Stanley, who is advancing from the west, and to establish a great central exploring station in the heart of the continent. Meanwhile, M. Cambier has been reinforced by the arrival at Karema of the second expedition, under the leadership of Captain Popelin and Dr. Van den Hoevel. At Mpwapwa this party was joined by Messrs. Carter and Cadenhead, from Dar-es-Salaam, with the four tame elephants which had been brought from India for the service of the Belgian expedition. Two of the elephants reached the Lake Tanganyika in safety, the other two having succumbed to the fatigues of the long march; it has been shown, however, that the Indian elephant can be used with advantage as a baggage animal in Africa, more especially as it seems to be proof against the bites of the dreaded tsetse fly, which

are so fatal to cattle and horses in the interior of the continent. Very recently intelligence has been received of the treacherous assassination of Messrs. Carter and Cadenhead, by the chief Mirambo, with whom Mr. Stanley made acquaintance on his journey from Zanzibar to Lake Tanganyika. To reinforce the Belgian expedition now established at Karema, Messrs. Burdo and Roger, with a third expedition of the Belgian Society, left Zanzibar early in the present year.

The Abbé Debaize, who, as stated in last year's "Companion," had led an important expedition, supported by the French Government, died at Ujiji in December last year, after a painful illness. This melancholy event happened just as the lamented Abbé had completed his preparations for exploring the great tract of country between lakes Tanganyika and Albert Nyanza.

Western Africa.—It will be remembered that Mr. H. M. Stanley had last year also undertaken an expedition in connection with the Belgian International Society to explore the Congo country above the falls of that river, and to establish stations on its banks. So far as can be judged from the meagre accounts which have been received of the progress and objects of this expedition, it seems to have been well equipped; at starting it consisted of fourteen Europeans and sixty-eight natives, and was furnished with four portable steam launches, one of which was lost in the rapids above Mboma. Last August it was announced that another party of Belgian explorers, consisting of MM. Braconnier, Valcke, Nève, and Van Heste, would leave for West Africa to reinforce Mr. Stanley.

Several expeditions from the West Coast into the interior of Africa have also been heard of during the past year; generally they are of minor importance, though each has added considerably to our store of geographical knowledge. Messrs. Capello and Ivens, the members of the Portuguese expedition, who accompanied Major Serpa Pinto on the first part of his journey, which was described in the former volume of the "Companion," returned to Loanda in November of last year. They separated from Major Pinto at Bihé, and turned northwards to explore the region of the Quango river; the hostility of the natives prevented them from descending the Quango to its junction with the Congo, as they had intended, but as they were fully equipped with surveying instruments, as well as with those for meteorological and magnetic observations, a rich harvest of scientific information is expected as the result of their labours.

In the autumn of last year an expedition by Messrs. Zweifel and Moustier, *employés* in the commercial house of Verminck, at Sierra Leone, succeeded in discovering the sources of the Niger or Joliba. They found three separate streams, which, soon after issuing from their founts, flow into a small lake, from which they emerge as one river, the Joliba. Other expeditions have been promoted by the French authorities on the West Coast, with a view of obtaining information preparatory to the survey of the proposed railway across the Great Sahara. There are also two English missionary parties working towards the Upper Congo, one under Mr. McCall of the Livingstone Mission, the other under Mr. Comber, of the Baptist Missionary Society. A detailed account of these would occupy more space than can be spared for this article.

Northern Africa.—In spite of the many difficulties placed in their way by the fanaticism of the Arab tribes with whom they came in contact, Dr. Gerhard Rohlfs and his assistant, Dr. Strecker, persevered in their attempt to reach the Wadai Oasis on their way to the upper waters of the Congo. On their arrival, however, at the Kufarah Oasis, they were met by the inhabitants with arms in their hands, and were compelled to surrender all their effects as well as the presents sent by the Emperor of Germany to the Sultan of Wadai, and but for the intervention of some of the headsmen would have been left to starve. By the influence of these chiefs the travellers contrived to recover a portion of their money, as well as their camels, on which they were able to return to Bengasi. Dr. Rohlfs then relinquished the undertaking altogether, but Dr. Strecker still remains in Africa with a view of reorganizing the expedition by a different route.

Dr. Oscar Lenz, the traveller sent to Morocco by the German African Society to explore the Atlas range, has been prevented by the opposition of the Berber chiefs from carrying out his original intention. He has, however, in the company of Hadj Ali, a nephew of the celebrated Abd-el-Kader, and under the disguise of a Turkish doctor of Constantinople, succeeded in escaping from the dominions of the Emperor of Morocco, crossing the Atlas by a pass never previously attempted by a European. By a letter dated the 13th April, he had arrived at Fum-el-Hossan, the residence of Sheik Ali, of the Kabyle tribe of Maribda. From thence he intended to start for Timbuctu, and afterwards to penetrate towards the Senegal.

Central Asia.—Colonel Prejevalsky has failed in his attempt

to reach Lhassa, the capital of Thibet, from the north-west. After many months spent in the remote and little known regions to the north of the elevated and deserted plateau which overhangs the city, he has been turned back by the refusal of the Lamas to allow him to visit the sacred city. At one time, indeed, rumours were in circulation that the intrepid traveller and his companions had lost their lives in the desolate mountainous regions south of Suchow. Fortunately these rumours proved to be false ; by the latest accounts contained in letters from Colonel Prejevalsky received by the Russian Geographical Society last June, it appears that he had penetrated from Suchow to Nabchu, a village only 180 versts from Lhassa, and was then encountered by a body of Thibetans, who refused to allow him to pass without permission from the Government. Retracing his steps, he arrived at Si-ning on the 19th March last, from which he intended to explore the upper course of the Yellow River, and to return home by way of Alashan to Urga.

Another bold attempt to reach the Thibetan capital was made last year by Count Széchényi, an Hungarian traveller, who endeavoured to accomplish the enterprise by way of Western China. After trying to visit the mysterious lake, Lob-nor, which he was prevented from doing by the refusal of the Chinese Governor of the province of Kansu to grant him a pass, he reached Si-ning, and remained there for six months exploring the neighbourhood of Koko-nor and the upper waters of the Yellow River. In August, 1879, he left Si-ning, and continued his journey towards Thibet by the Chinese province of Szechuen ; here he was met by persistent attempts of the Chinese authorities to dissuade him from his enterprise, and finally by threats of armed resistance he was compelled to give way to the opposition raised by the jealousy of the priestly governing class. He abandoned his attempt, and returned to Europe by way of Yunnan and Burmah.

South America.—In this part of the world contributions to geographical science have been made during the year by the veteran Alpine climber, Mr. Edward Whymper. With two Swiss guides, the brothers Carrel, whom he took with him to South America, Mr. Whymper has ascended some of the high peaks of the Andes. Besides Chimborazo he has succeeded in reaching the summits of Corazon, Sincholegua, Antisana, and Pichincha, and on one occasion he was compelled to pass twenty-six consecutive hours on the top of the volcano Cotopaxi, at a height of 19,500 feet. He has made a series of careful observations, and

the results that he obtained will be published on his return to England, which may be shortly expected.

Arctic Exploration.—Very little appears to have been accomplished in the northern seas. The *Jeanette* (with the Gordon-Bennett expedition) whose voyage as far as Onalaska was recorded last year, has not since been heard of, and the relief steamer *Corwin* sent to find and succour her if necessary, has returned without tidings of the missing vessel.

In the summer of 1878 an expedition fitted out in the United States by private enterprise was sent to search for further relics of the Franklin expedition and of the crews of the *Erebus* and *Terror*, which rumours among the Eskimos of Hudson's Bay asserted to be still in existence. Lieutenant Schwatka, the leader of this expedition, and his companions returned at the end of last September to Massachusetts, having accomplished a sledge journey of over 2,819 geographical miles in length—the longest sledge journey on record—and after enduring the greatest amount of cold ever experienced by white men. During sixteen days of the sledge journey, extending over a period of eleven months, the average temperature was 100° below freezing point. In the main object of this expedition they were completely successful; on the shores of King William's Land and on the adjoining mainland they found the graves of many of that devoted band of explorers, and they buried the bones of all remaining above ground and erected monuments to their memory. They have brought home also several tokens and relics, though they have not been able to add much to our knowledge of the end of the ill-fated expedition.

Chemistry.

Chemistry is probably, at least by name, the most popular of all the sciences; there is, perhaps, no small number of persons who think that all scientific discovery must needs be chemical. Unfortunately for those readers of the "Companion" who have ideas of this kind, there is very little new in chemistry to record which can find a place in a record that can be made intelligible to non-scientific readers.

Dissociation of the Elements.—In the article on "Science of the Year 1878–1879," written for the preceding volume of the "British Almanac," attention was drawn to the theory of Mr. Norman Lockyer as to the compound nature of many of the substances which chemists have hitherto regarded as simple bodies.

These views of Mr. Lockyer, which rest on his own spectroscopic observations, have given rise to much difference of opinion among scientific men; among others, Professors Liveing and Dewar, of Cambridge, are inclined to question the validity of the arguments which he employs. Again, Professor Meyer, of Zürich, who, as stated in last year's "Companion," had not only shown that the so-called element chlorine is a compound, but had actually succeeded in isolating the dissociation products, in a subsequent report to the German Chemical Society limits his discovery to the fact that chlorine at a temperature of 1,200° undergoes a remarkable change of density, and argues that this observation tends to show that chlorine is not the simple substance it has hitherto been supposed to be. Subsequently Professor Crafts, a well-known American chemist, on repeating Meyer's experiments in a slightly modified form, was unable to arrive at the same conclusion, but working with iodine he succeeded in showing that that substance was capable of dissociation at a somewhat lower temperature than that given by Meyer for chlorine. Since the announcement of Crafts' observations, Meyer has himself acknowledged the substantial accuracy of the results obtained by his American colleague, so that the question remains at present in an undecided state.

It will be recollected that three years ago Dr. Henry Draper, of New York, announced the discovery of the existence of oxygen and nitrogen in the solar atmosphere. This discovery has, however, not been confirmed, and is indeed denied by those who assert that the surface of the sun is too hot for metalloids to exist there. Solar spectroscopy has proved that above forty of the known metals can be detected in the heated matter surrounding the sun, but except Draper no one has seen traces of a non-metallic element. Hydrogen, it is true, is found there in abundance; but this fact is held to be a convincing proof that that element is really a metal and not a metalloid. Like chlorine and iodine, which can be dissociated at artificial temperatures, it is urged that all the other non-metallic elements must become dissociated in the intense heat of the solar surface.

Pursuing this argument, M. Raoul Pictet, of Geneva, proposes to utilize the sun's heat itself for demonstrating the compound nature of the non-metallic elements. To effect this, he would construct an enormous parabolic mirror of silver to concentrate the sun's rays into a focus. An idea of the size of this mirror may be gathered from the calculation of M. Pictet, that to de-

compose one gramme of bromine per minute, will require a reflecting surface of at least 35 square metres, measured at right angles to the direction of the rays, or an aperture to this gigantic looking-glass of about 10 metres diameter.

Artificial Diamonds.—Chemists have long been acquainted with the chemical constitution of the diamond; it was known to be carbon in its purest natural form, and it has always been considered possible, if not probable, that a method might be discovered of producing it artificially. No great surprise therefore as to the fact, though great curiosity as to the means, was expressed, when towards the end of last year, several of the newspapers contained the announcement that small diamonds had been produced artificially by Mr. Mactear, of the St. Rollox Works, Glasgow. Some of the so-called diamonds were subsequently placed in the hands of Professor Story-Maskelyne (then of the British Museum), for a decision as to their true nature. The searching examination to which they were submitted by this gentleman, soon showed that their claim to be considered specimens of the real gem could not be entertained. The diamond is the hardest of known substances; the crystals of Mr. Mactear were found to be incapable of scratching the topaz. The natural diamond refracts light singly; the artificial diamond under the polariscope proved to be bi-refringent. Finally, the true diamond is pure carbon, and burns away when heated in the air or in an atmosphere of oxygen gas, with the production of carbonic acid only; the Glasgow diamonds resisted the intense heat of a table blowpipe. In all three characteristics of the diamond, these crystals were found to be entirely wanting.

A much more successful attempt to solve this very difficult problem has been made by Mr. J. B. Hannay, a young chemist, at Glasgow. Experimenting with liquids containing solids in solution, he found that when the liquid was converted into a gas by raising its temperature, the solid in many cases also remained in a state of solution or diffusion in the gaseous menstruum, and that when the solid is freed from its gaseous solvent, it is invariably deposited in a crystalline form. From this, he was led to try whether carbon treated in this way could not be obtained as a crystal, but was met with the difficulty of finding a solvent for that substance. Then he determined to attack the problem in a less direct way; he discovered that when a volatile hydrocarbon, that is, a gas containing carbon and hydrogen, is submitted to heat under great pressure in the presence of the

alkaline metals, the hydrocarbon is broken up, and the hydrogen combines with the metal, while the carbon is set free. The experiments which he conducted in the course of this research must have been of enormous difficulty. To obtain the requisite pressure he imprisoned the substances in wrought-iron tubes of immense thickness and strength, but under the intense strain to which they were subjected, these tubes in numerous instances tore open like paper, with considerable danger to the life and limbs of the operators. Finally, however, Mr. Hannay succeeded, in the presence of a stable compound of nitrogen, in obtaining crystals of carbon, which, to all intents and purposes, are real diamonds. They have been examined by Professor Story-Maskelyne, and have been pronounced by him to possess all the characteristics of the real gem; they are as hard as the diamond, they have the same optical properties, and the same crystalline form, and they behave in the same way before the blowpipe. It is understood that the substance containing hydrogen, carbon, and nitrogen, in the proportions best adapted for the process of Mr. Hannay, is a mixture of pure paraffin and rectified bone oil.

Geology and Palæontology.

A Reptilian Bird.—Nearly twenty years ago, Von Meyer, from the evidence of a fossil feather found in the Solenhofen lithographic stone, established the genus *Archæopteryx*. Somewhat later, a slab of limestone, containing various parts of a feather-bearing animal, was found in the same deposit; it is now deposited in the British Museum, and the remains were described by Professor Owen as those of a bird, which he referred to Von Meyer's genus of Archæopteryx under the name of *Archæopteryx macrura*, in allusion to the length of the tail. A second, and much more perfect specimen of the same creature was afterwards discovered in the lithographic stone of Pappenheim, and was placed in the Senckenbergian Museum at Frankfort, where for some years no one was allowed to see it. Recently, however, it has been examined by Professor Carl Vogt, who gave a most interesting account of his investigation, at the meeting of the Swiss Society of Natural Sciences, held last year at St. Gall. From this account, it appears that the head, neck, and all the fore part of the body, including the anterior limbs, are clearly constructed as in reptiles, while the posterior limbs are those of a bird. A large part, particularly the hinder part of the body,

was covered with feathers, the legs resembling those of a falcon, and there was probably a ring of feathers round the neck, as in the condor; there were also feathers attached to the wings or arms, though these are like the arms of a three-fingered lizard. It therefore seems probable that the animal was not adapted for flight. Professor Vogt regards the Archæopteryx as neither a reptile nor a bird, but as an intermediate type of the most strongly marked description.

The Great Sea Gull of the Sheppey Clay.—About two years ago, the fossil humerus of a large bird was found in the clay of the Isle of Sheppey. Professor Owen, to whom the bone was submitted, regarded it as part of the wing of an aquatic bird, for which he proposed the name of *Argillornis longipennis*. Recently, a bird's skull has been found in the same deposit, and at a meeting of the Geological Society, in November last, it was pronounced by the same eminent authority to have belonged to an animal of the same species. The characteristics of the skull confirm the opinion Professor Owen had previously formed; it seems to have belonged to a large sea bird, approximating most nearly to the albatross among existing birds.

Fossil Remains of Reptiles in America.—Professor Marsh continues to push his researches among the fossil remains from the Jurassic deposits of the Rocky Mountains, an immense store of which he has succeeded in collecting at Yale College. Among his recent discoveries is a new genus of the family *Laosauridæ*, to which he has given the name of *Camptonotus*; one of these, *Camptonotus dispar*, was a herbivorous animal, about eight or ten feet high, and another, *Camptonotus amplus*, was three times as large. The remains of the largest reptile yet known, the *Brontosaurus*, have lately been brought to light in the same region, as well as those of a carnivorous Dinosaur, about the size of the wolf, and named *Cœlurus*. Professor Marsh has also found among the collections of the Yale Museum the relics of no less than 1,400 distinct individuals of the Mosasauroid reptiles, which are so rare in Europe.

An Ancient Glacier Bed.—A very interesting discovery has been made near Solothurn, in Switzerland. In the course of some quarrying operations, a mass of drift sand and boulders, to the depth of some 18 feet, had to be removed, underneath which was found the hard limestone rock highly polished by the action of ice, and channelled by running water. The channels communicate with three gigantic "pot holes," as they are

termed; in one of these, the huge boulder or millstone by which it was hollowed out, still remained. This bed of limestone must during the last glacial epoch have formed part of the bed of a glacier; the ice water ran down the channels, and set in motion the great pebbles, until their wearing action had ground out the deep holes sometimes called "Giant's Rattles." Tourists will remember that a similar appearance has been thrown open in the "Gletscher Garten," at Lucerne, but the rock in that case is sandstone.

Physics.

The Electric Light.—Attempts to utilise the electric light for public illuminating purposes have been continued during the year. The Jablochkoff candle has been tried in various parts of London and Paris, but the flicker at every inversion of the current detracts much from its value as an agreeable source of light. The Brush light is gradually coming into extended use; it has been at work for some time in one of the courts of the South Kensington Museum, and is stated to give great satisfaction. Another form of electric candle has been invented by the distinguished French physicist, M. Jamin, and it has been tried in Paris with success, so far as the light produced is concerned, but the expense of working it renders it doubtful whether it will be adapted to general purposes. The means by which M. Jamin renders his candle self-lighting, and the current continuous, is declared to be an infringement of the Wilde patent, and its prior invention is also claimed for Mr. Robert Sabine.

Towards the end of 1879 the American correspondents of the London daily papers telegraphed in rather sanguine language accounts of a new electric lamp invented by Mr. Edison. The extraordinary simplicity and marvellous cheapness (it was to cost only 25 cents) of this wonderful lamp, and the brilliancy and steadiness of the light it gave out, were represented in glowing colours. It was described as consisting essentially of a strip of carbonised paper, bent into a horse-shoe form in the interior of a glass globe, from which the air had been exhausted, and rendered incandescent by an electric current. Mr. Edison, it was stated, had determined to put up 800 of these lamps at Menlo Park, where his workshops are situated, and had made arrangements to put the light into practical operation in New York city. At the end of January, however, the reports were not quite so satisfactory. Mr. Edison had found it impossible to construct a glass globe

which would maintain a perfect vacuum; the manufacturing of additional lamps had been countermanded, and no arrangements had been made practically to use the light in New York. Since then nothing more has been heard of Mr. Edison's new lamp, and it is understood to be a failure. When the principle of Edison's lamp was first announced, Mr. J. W. Swan, of Newcastle-on-Tyne, claimed to have adopted the use of charred paper or cardboard of a horse-shape fifteen years before, but, as he stated, had not succeeded in rendering the lamp durable. Since Edison's failure, however, Swan has invented a globe which is said to maintain the vacuum, but the success of this invention cannot be pronounced on authoritatively until it has been a longer time before the public.

Seeing by Electricity.—The transmission of sound by the agency of an electrical current has become now firmly established in the region of accomplished possibilities; this is abundantly proved by the success of the telephone in its various forms as an instrument of practical use, which for many purposes threatens to supersede the electric telegraph. Naturally, almost, the attention of inventors would be directed to the construction of an instrument by which light might be transmitted by electricity in the same way as the telephone transmits sound. In the spring rumours reached England that such an instrument, under the name of the *diaphote* or *telephote*, had actually been invented in America, and it was authoritatively stated that Professor Graham Bell had deposited in the Smithsonian Institution a sealed package, containing the first results obtained with this remarkable invention.

On the publication of this information Messrs. Ayrton and Perry, formerly Professors of the Imperial Japanese College of Engineering at Tokio, announced that the idea of seeing by electricity was by no means new, and they sketched a plan by which this result might be accomplished. It has long been known that if a piece of selenium forms part of a circuit in which there is a current passing, the electric resistance will vary with the illumination of the selenium. Accordingly Messrs. Ayrton and Perry proposed to construct a mirror formed of an immense number of small pieces of selenium, to each of which there should be attached an electric wire connected with a distant place. This mirror would be the transmitter, and an image could be thrown on it by means of a lens. At the distant place would be the receiver, which was to consist of a collection of magnetic needles, each of which is connected with a portion of the transmitter by

its own wire. Each magnet by its movement would then be made to open or close an aperture through which light could pass to illuminate the back of a small square of frosted glass. Thus the action of light impinging on the selenium element of the mirror would be transmitted by the electric current to the magnetic needle, and be again translated into light on the frosted glass. A complicated arrangement of this kind, however, could scarcely be successfully introduced into practice, and an instrument of the kind indicated has never even been constructed. Mr. G. R. Carey, of Boston, America, also published a suggestion for an instrument of this kind, in which the transmitter, as in the former case, consists of a surface made up of a number of pieces of selenium, but in the receiver the circuits would reproduce the image by incandescence.

The Photophone.—When, however, Professor Bell actually made known the instrument which he had invented, it proved to be in no way actuated by electricity. The photophone, as his instrument is called (an account of which has only just appeared as this article is passing through the press), solves in a way which is almost startling in its simplicity the problem of the transmission of audible sounds by the agency of light alone. "In fact, it bears the same relation to the telephone that the heliograph does to the telegraph. You speak to a transmitting instrument, which flashes the vibrations along a beam of light to a distant station, where a receiving instrument reconverts the light into audible speech."*

A plane mirror, formed of thin silvered glass or mica, on which a powerful beam of light is concentrated by a lens, forms the transmitter. Against the back of this flexible mirror the speaker's voice is directed, thus throwing it into a state of vibration; the vibrations are communicated along the beam of reflected light to the receiving instrument at a distant station. This receiver consists essentially of a disc of hard rubber placed across the end of a hearing tube; the reflected beam, being thrown on this disc, communicates to it, in a way which is not understood, the vibrations of the reflecting mirror, and these are thus translated into audible sound. It will be seen that the principle of the receiving instrument depends on the newly found property of hard rubber of converting the vibrations of light which impinge on it into those of sound, and Professor Bell has

* "Nature," vol. xxii, No. 569, page 481.

discovered that other substances—gold, silver, selenium, iron, paper, and more especially antimony, are similarly sensitive to light. Though yet in its merest infancy, the photophone evidently contains the elements of a discovery which may be of great practical value. Professor Bell, the inventor of the first speaking telephone, has indeed added to his laurels.

Biology.

A Fresh-water Jelly-fish.—Early in the summer Mr. Sowerby, the secretary of the Botanical Society of London, observed in the tank of the water-lily house in the Society's garden in Regent's Park a number of floating or swimming organisms, which bore a remarkable resemblance to the medusæ or jelly-fish, so common on our coasts. They had the well-known form of the umbrella, opening and shutting in regular movements, as we see in the jelly-fish in the sea. On submitting specimens of this creature to Professor Lankester and Professor Allman, they were pronounced by those competent naturalists to be really individuals of the true medusa class, the interest attaching to it arising from the fact that hitherto no medusa of any kind has been detected in fresh water. As this medusa was found living in water which is kept at a temperature of from 80° to 90°, it clearly belongs to a tropical species, and was probably introduced into the tank where it was found with the plants of the Victoria Regia. Professor Allman proposes to give this new form of jelly-fish the name of *Limnocodium*, or lake-bell, to which, in honour of the discoverer, Mr. Lankester adds the specific name of *Sowerbii*. A remarkable fact in the physiology of this animal, observed by Mr. Romanes, is that it is killed by immersion in sea-water; this is exactly similar to the parallel phenomenon observed in the case of the marine medusæ: if one of the latter be suddenly transferred to fresh water, it will instantaneously collapse and sink to the bottom of the vessel, where it rapidly dies.

Vegetation under the Electric Light.—The great physical fact on which all vegetable life depends is the breaking up of the carbonic acid of the atmosphere by the green colouring matter of foliage, or chlorophyll, under the action of light. Not only so, but light, though probably not of the same intensity, is essential to the production of the chlorophyll itself. A plant kept in the dark soon becomes blanched or etiolated, a circumstance of which gardeners take advantage for blanching vegetables like endive or celery. Now it has been long a question with physiologists

whether these phenomena are due to solar light alone, or whether they can be produced by any form of artificial light. Both De Candolle and Biot experimented with the light of powerful Argand lamps; but, though they succeeded under these circumstances in developing a green colour in etiolated leaves and in young seedlings of mustard and cress, they completely failed in obtaining any evolution of oxygen from perfectly healthy foliage, and therefore any evidence that carbonic acid had been broken up.

With the light obtained from the electric arc produced by a continuous current from a dynamo-electric machine, a source of much more powerful artificial light has been placed at the disposal of the experimenter. In March last Dr. C. W. Siemens laid before the Royal Society the results of his experiments on the growth of plants under the electric light, results which serve to show that this light, when of sufficient intensity, has the same action in stimulating the vital functions of vegetable life as the sun itself. With an electric centre of light equal to 1,400 candles placed in his greenhouse at a distance of between 6 and 7 feet from growing plants, he has produced effects on vegetation equal to what ordinary daylight in the early spring of the year is capable of developing. More than that, by alternating the employment of sunlight by day and the electric light during a part of the night, he has maintained a state of illumination equivalent to the nightless days of the arctic regions, and has extracted from the plants double work as it were, so that the marvellous growth during the short summer of the high latitudes has been artificially reproduced. It is hoped that this discovery of Dr. Siemens may be taken advantage of by horticulturists, and that the aid of the electric light may be invoked to force plants and ripen fruits more rapidly than can be effected under our somewhat precarious and tardy sunlight.

Mechanics and Engineering.

The Gotthard Tunnel.—For the second time the Alps have been pierced; the great barrier to railway communication between Italy and the countries to the north has been broken through in another place. The first of these achievements, the Mont Cenis tunnel, which connects France and Sardinia, was at the time considered to be a marvel of engineering, but now it has been eclipsed by the completion of a still more stupendous undertaking.

The tunnel under the Mont Cenis was commenced in August, 1857, and the advanced headings first met on Christmas Day, 1870; it took, therefore, nearly 14½ years to complete, and eight months more were required to make it ready for railway traffic. This tunnel is 7½ miles long, while that under the St. Gotthard, which has just been finished, has a length of 9¼ miles, from Göschenen, in the valley of the Reuss, to Airolo, in that of the Ticino. The latter tunnel is intended to connect the railways which meet at Zürich on the Swiss side of the Alps with those in Italy, of which Milan is the centre; it will thus form an important link in the chain of communication from England to Brindisi on the road to the East, and will greatly facilitate the transport of goods and merchandise between the south and north of Europe. In constructing it a company was formed in 1871, with a capital of 4,080,000*l.* partly guaranteed by the Governments of Switzerland, Germany, and Italy. On the 7th August, 1872, the contract which had been undertaken by the well-known railway engineer, M. Louis Favre, of Geneva, was signed, but difficulties interposed by the Italians, delayed the actual commencement of the work until the following November. On Sunday, the 29th February of this year, the mining parties in the Göschenen and Airolo ends of the tunnel met each other, and it was found that the axes of the two parts corresponded within an inch; this must be considered as a triumph of engineering skill, remembering that from the circumstances of the case no vertical shafts could be made to correct the surveying. When the Mont Cenis tunnel was approaching completion the advanced headings of the two sections had been driven in a parallel direction for some distance past each other, before it was discovered that they should be in communication.

In its dimensions the Gotthard tunnel is very similar to that of the Mont Cenis; it has a uniform height of rather more than 9½ feet, and its width varies in different places from a maximum of 26¼ to a minimum of nearly 25 feet. For the most part it has been driven through hard granitic gneiss rock relieved in places by equally hard serpentine. In one place a difficulty was met with which threatened seriously to retard the completion of the undertaking; the miners came upon a formation of porous white stone in an almost semifluid condition, and the massive stone masonry which is built to line the tunnel was completely crushed by the enormous superincumbent pressure. According to Professor Colladon this "windy stretch" is composed of a

calcareous aluminous schist; it absorbs moisture like a sponge, and swells enormously on exposure to the atmosphere. The difficulty was at last overcome by rebuilding the supporting masonry in rings of solid granite, each ring being 4 metres long, so that if one gave way the others could not be affected.

For driving the rock-drills steam was at first employed, but when the tunnel had advanced some way, compressed air was substituted, the compressors being moved by water turbines. By this means the ventilation was improved, though even then the temperature of the tunnel did not fall below 100°, and the close atmosphere was found to be very fatal to the horses employed in removing the *débris*. It is hoped that the Gotthard tunnel may be opened for traffic in the course of next spring, and that the railway system, of which it is the centre, may be completed in a couple of years more.

The Tay Bridge.—In the "Companion to the British Almanac" for 1879, an account was given of the construction of the railway bridge across the Tay at Dundee. The awful disaster in which, during a violent gale, a great part of the structure, together with a train and its living freight, was precipitated into the tideway beneath, need not be recounted here. It is only requisite to point out that the description of the structure previously given was generally confined to the construction of the piers and the manner of building them. From the report of the Commissioners appointed by the Government to inquire into the cause of this, probably the most terrible railway accident on record, it would appear that the fault lay in the improper construction of the girders, which were not designed to stand a pressure equal to that exerted by the wind on the occasion when the bridge fell. It seems too that there was a want of care in supervising the casting of the ironwork, and that sufficient attention was not paid to maintaining the whole structure in an efficient state.

A new Diving Apparatus.—Mr. Fleuss has invented and introduced an apparatus on an entirely new principle for divers employed in subaqueous operations; it may also be used by firemen who have to enter the suffocating smoke of a burning building, or by a miner who has to encounter the fatal choke damp. This apparatus consists essentially in a supply of pure oxygen compressed into a small reservoir attached to the diver's helmet. The oxygen can be admitted gradually to mix with the air inside the helmet, while the breath expired by the diver is passed over caustic soda and so deprived of its carbonic acid; all the nitrogen

which is left unaffected, together with the remainder of the oxygen not used up in forming the carbonic acid, then returns to the helmet, when having its proper proportion of oxygen restored to it from the reservoir, it becomes an atmosphere fit again for respiration. The reservoir contains a supply of oxygen under a pressure of eight atmospheres to last three hours.

In a dress made on this principle, Mr. Fleuss has passed twenty minutes in a space entirely filled with carbonic acid gas, and has returned to the air quite unaffected. He tried the same experiment in an atmosphere consisting partly of carbonic acid, and partly of amyl hydride, in which a man unprotected would have become unconscious in a minute; in this atmosphere Mr. Fleuss also remained twenty minutes and experienced no ill effects whatever. As a diver he has remained under water between two and three hours, but it remains to be proved whether he can descend to so great a depth as a diver who is constantly supplied with fresh atmospheric air for respiration; under such circumstances a diver can descend to a depth of 86 feet, when the pressure is nearly that of $2\frac{1}{2}$ atmospheres, but the lowest depth to which Mr. Fleuss has yet descended with his own invention is 25 feet. At any rate he has done enough to show that his apparatus contains the promise of great usefulness in the arts.

J. F. Iselin.

THE MUSIC OF THE YEAR 1880.

Whatever marks of progress the year 1880 may bear in the world of English music it will, as far as London is concerned, be specially remembered as the season in which one of the foremost societies of amateurs of the art was disbanded by its conductor, to the genuine regret not only of the performers, but of all who had attended its concerts during a period of a quarter of a century. That Mr. Henry Leslie should have decided thus to scatter a choir which had not merely taken the first rank among English choralists, but had distanced all competitors at the International Exhibition at Paris in 1878, was held by many musicians to be a mistake; but the reasons which he assigned for adopting a somewhat unusual course were weighty, and among them the most cogent were his personal need of rest, and his unwillingness to compel the choir who had laboured so long and so well to submit to a process of

reconstruction which would have been inevitable if the performances had been continued without interruption for any longer period. Another event of a like character, which had been anticipated with even stronger feelings of regret, has happily been indefinitely postponed, as although Professor Ella retires from the active direction of the Musical Union on the conclusion of its thirty-sixth season, the institution will continue to exist, and the new director will have the benefit of the advice and assistance of the venerable founder. Yet a third expected loss has also been averted by the decision of the committee of the Sacred Harmonic Society to transfer its concerts from Exeter Hall, which has become the property of the Young Men's Christian Association, to St. James's Hall, a proceeding which is to be very cordially welcomed, as although the Society's chorus has become decidedly antique, and its policy has been commercial rather than artistic, London cannot afford to lose it, and its abolition would also have endangered the maintenance of the Handel Festivals which have in a great measure been developed from it. For these reasons the Society's removal to the western hall is much to be preferred to its dissolution, and there is another cause for congratulation in the official announcement that in its new home it will enter on a new career by adopting a more liberal policy in the selection of works for performance, and by remodelling the band and choir. This latter function of musical surgery, if painful to some of the more venerable choralists and instrumentalists, can scarcely fail to bring with it a very considerable improvement in the general standard of execution, and it will also make it possible to do justice to less familiar works than the oratorios of Haydn, Handel, and Mendelssohn. Thus with one actual loss we can look back upon two dangers escaped, and even as far as Mr. Leslie's choir is concerned he hinted in his remarks after the final concert that he by no means pledged himself never to enter the lists again, and we therefore anticipate a second Leslie's Choir which shall equal, if not eclipse, the glories of the first.

Looking for general signs of movement during the year, we are still met by the spectacle of a division of opinion as far as the national music school of the future is concerned, the resistance of the Royal Academy to the suggested fusion with the National Training School at South Kensington having been strenuously maintained ; in fact we believe that the negotiations may be said to have ceased. Meanwhile the great powers have once more

been in conference, and the efforts of the Duke of Edinburgh as head of the Kensington School, and of Prince Christian as chairman of the committee for promoting the union with, or the absorption of, the Royal Academy, as some persons persist in representing the idea, having failed, recourse has been had to the Prince of Wales, who has approached the Queen with yet another plan. According to the document printed as a parliamentary paper it appears that the Prince is inviting the Queen to grant a Charter of Incorporation to what his Royal Highness terms "The Royal College of Music," an institution which at present, it is needless to say, only exists on paper. This College, it is suggested, is to include as a part thereof, the existing Training School at South Kensington, but His Royal Highness omits to state whence the other part is to come, and it is therefore only an inference from the history of the past if we suppose that some fresh pressure is, ere long, to be put upon the Royal Academy to induce it to coalesce. The plan sketched for the College is somewhat ambitious, for it is to have a president, vice-president, principal and vice-principal, a council, a staff of teachers, a board of studies, graduates, fellows and associates, and it does not require any very considerable amount of discrimination to see that the Royal College of Music would, if it should emerge from the embryo in which it at present waits for development, be neither more nor less than the National Training School for Music "writ large." The question with which the profession and the public are mainly concerned in looking at this further attempt to force the Royal Academy either to submit to an unwelcome union or to consent to be relegated to a secondary position is whether it is an equitable proceeding. No one can dispute the good work done by the Academy in the past under difficulties and discouragements far greater than any with which the South Kensington School, with its Royal and aristocratic patrons and its temporary subsidies, has had to contend; and while it would be absurd to deny that there may be points in its management capable of improvement, the question is whether as an older institution already possessing a Royal Charter, it should be treated in this way. It is easy to see that as the South Kensington School was very largely formed on subscriptions given to support scholars for a limited term of five years, which have now nearly passed away, its promoters must either induce their friends to renew their aid or find some other means of livelihood, but that is no adequate reason why the managers of the Royal Academy should acquiesce in what

virtually amounts to the swallowing up of the institution in a College which may or may not prove to be superior to it. The Academy's Charter was obtained in 1830, and George IV., William IV., and Queen Victoria have successively consented to fill the office of patron; it is therefore difficult to see how Her Majesty can be advised to constitute any other body a Royal College of Music, until it is proved that the Academy has forfeited its trust or has abused its privileges.

While at the west end of the town the subject of higher musical education has thus been the cause of renewed contention, the Corporation of London has sanctioned the establishment of what is termed the "Guildhall School of Music" with Mr. H. Weist Hill, one of the foremost of English violinists and an able orchestral conductor, as its principal. We learn from the official prospectus that the course of the school will be divided into elementary, intermediate, high-class, and special tuition in the following subjects, viz.: pianoforte; solo, class, and sight singing; violin, viola, violoncello, double bass, flute, oboe, clarinet, bassoon, horn, trumpet, trombone, harp, organ, harmonium; harmony, counterpoint, canon, and fugue, composition, French and Italian languages, and elocution. There will be three terms during the session of each year, the first commencing on the third Monday of September; the second in the third week in January, and the third in the third week in March, each lasting thirteen weeks. The scale of fees will vary according to the nature and extent of the tuition and the class in which the pupil is entered. All students are required to attend the harmony classes. The teaching will be given daily from 8.30 a.m. to 9 o'clock p.m. All students must be nominated by a member of the Court of Common Council on forms which may be obtained from the secretary. One important feature in the school is its provision of musical instruction in every branch of the art during the evening, while its establishment in the very centre of the city, within easy reach of the great mercantile houses, will enable the persons employed within their walls to avail themselves of its advantages without losing the time involved in a journey from East to West. Among the other institutions for affording higher musical education Trinity College, London, is extending its operations, and has during the year taken possession of enlarged premises. Although originally established on a purely musical basis, it now appears to be providing lectures and classes in all the

subjects of a liberal education, and is thus passing out of the range of class institutions. Whether this is a wise course of procedure remains to be seen, as although the requirement of some proof of general education as a preliminary to admission to the examinations for musical certificates was most desirable, and was in accordance with the precedent originally set by Sir R. P. Stewart at Dublin, and since acted on at Oxford and Cambridge, it by no means follows that it is a sound policy to provide such education as well as to test it. The examinations at country centres instituted by the College are being largely entered for, and the Society of Arts has also resumed its examinations on the same system, with Dr. John Hullah as the principal examiner. The College of Organists has migrated to new premises at 95 Great Russell Street, where its lectures have been well attended.

The Musical Association, by which music is represented among the learned societies of the metropolis, received during its session from November to June papers on a wide variety of subjects connected with the various branches of the art, from its physiological side as touched upon by Mr. Emihl Behnke in his paper "On the Mechanism of the Human Voice," up to "Musical Æsthetics" treated by Mr. Breakspeare, and including such technical questions as "The Quality of Tone in Wind Instruments" on which Mr. D. J. Blakeley was the authority. Appealing to a still larger circle were Professor Macfarren's discourse on "The Lyrical Drama," and Mr. G. A. Osborne's pleasant "Reminiscences of Frederic Chopin," while the former honorary Secretary, Mr. C. K. Salaman, read a paper "On Music as a Profession in England," a subject with which, from his long experience and high standing among English musicians he is thoroughly qualified to deal. The Association has thus, it will be seen, cultivated with much success the many-sidedness by which alone it can hope to maintain a profitable existence, and the six volumes of its "Proceedings," including not only the papers read, but the reports of the discussions, form a valuable and interesting contribution to our too scanty national literature of music.

In the direction of elementary musical instruction, the change of Government led to a change of policy for the intention of the Education Department, as announced when Lord George Hamilton was Vice-President, of making sixpence out of the shilling now given as a grant for singing dependent upon the sight-reading of

music, was abandoned when Mr. Mundella succeeded his lordship, and the Code finally issued for 1880 leaves the musical shilling undisturbed as a reward for that mere singing by ear which has long been so forcibly attacked by Dr. Hullah in his official capacity as Her Majesty's Inspector of Music in the Training Colleges. Dr. Hullah's personal opinion as to the comparative unproductiveness of the expenditure of public money under the present regulations, and of its scanty fruit as far as any real improvement in the general musical education of the nation is concerned, was materially strengthened by the visit which he paid during 1879 to the chief cities of Switzerland, Wurtemburg, Bavaria, Austria, Saxony, Prussia, Holland, and Belgium, when, in accordance with the instructions of the Committee of Council on Education, he examined minutely the methods on which music was taught in the elementary schools of those cities. The text of his report, which is full of interest not only for the musician but for all who desire to promote the moral and social improvement of the people, is published as a parliamentary paper by Messrs. Hansard, and is included in the "Blue Book" of the Education Department for 1879–80, while it has been made accessible to the public by its appearance in the pages of the *Choir*. As regards the general results of this tour of inspection, Dr. Hullah remarks that the elementary schools of the continent present three striking points of difference from those of Great Britain: (1) the scholars remain longer in and are more regular in their attendance on them than with us; (2) the amount of teaching force brought to bear upon them is greater than on ours; (3) more power of attention and more eagerness to learn are generally exhibited by continental than by English children. These are such unmistakable advantages that the English child who does not possess them is necessarily somewhat handicapped in the race with the continental child; but despite this, Dr. Hullah proclaims his belief—which is, as the reader will not need to be reminded, in direct conflict with that of many of his fellow musicians—that "the so-called 'natural' musical power of the English people is equal to that of the German or any other people." While, however, he claims for the English a musical power equal to that of any like population, he is compelled to concede that the cultivation of the art has hitherto been less extended here than on the continent. The course to be adopted to bring England in this respect up to the level of other European countries is, Dr. Hullah holds, to furnish

the nation with a better and earlier musical training, and he believes that we have amongst us means and appliances whereby musical instruction in our elementary schools might be made to equal that of Holland, and even Belgium. His plan for providing the necessary teaching power is in the first place to carry the musical training in our normal schools, where the future schoolmasters and schoolmistresses receive their professional education, further than it is at present carried, and in cases where exceptional ability is manifested to send the students on to an Academy of Music. Dr. Hullah's idea seems to be that specially qualified teachers might undertake the musical instruction of the children in those elementary schools where the present teachers are unequal to the task. This proposal of course implies the adoption of sight-singing instead of ear-singing, and for the attainment of this end Dr. Hullah recommends a strict adherence to the recognised musical notation which he found in use, he remarks, in every school on the continent except at Geneva. On this point, Dr. Hullah speaks very strongly: he does not wish to interfere with the *method* on which the pupils are trained, but he earnestly pleads that "the sanction of the Government may not be further given or implied to a notation or alphabet—absolutely unknown out of Great Britain—the closest acquaintance with which fails to enable its possessors to read music as it is ever written by musicians." The intention of the late Government, by whose directions Dr. Hullah's continental tour had been undertaken, was so far to give effect to his recommendations as to make singing by notes compulsory as a condition for the full grant of one shilling per child, except in infants' schools where it was still to be attainable by ear-singing; but Mr. Mundella, as we have already said, in his second edition of the Code, left the regulation in the old form, so that for another year at least more than 100,000*l.* is to be paid for a system which as far as any absolute result in the improvement of national musical education is concerned is declared by Dr. Hullah, Mr. Henry Leslie, and other recognised authorities, to be utterly worthless. As a proof that this view is not held alone by musical experts, who might be expected to look at the question solely from a professional stand-point, we find in the reports of several of Her Majesty's Inspectors an equally strong condemnation of the present *régime*. Thus, Mr. W. E. Currey, the inspector for the Northampton district, says that in his experience "a few schools only make an attempt at systematic musical teaching." He

regrets that the name "music" should have been selected for describing that for which the additional grant is habitually paid, and says he would "have preferred to see the schools made a present of the money for average attendance simply. There is a danger at present that the children in our schools may be really induced to think that what 'Government' is content to accept as music must be the genuine thing." Mr. T. S. Aldis, inspector for the Harrogate district, says: "Better no instruction in music than that which leads to the natural conclusion that music is stale, flat, and unprofitable. The knowledge acquired will soon be forgotten, not so the disgust." Mr. Danby, of the Ipswich district, says that: "the grant for singing is paid for what is of no real benefit, educational or other, to the scholars," and he adds the amusing comment: "Writers on elementary acoustics insist on the difference between noise and musical sound; I wish that all teachers of singing did the same." As to the possibility of working a change in the direction recommended by Dr. Hullah, Mr. Moncreiff, inspector for the Bristol district, says he is certain that "a large number of teachers can and would teach by note—many do so to some extent now, who do not report it—if it led to any tangible result." All this points unmistakably to the necessity for a radical alteration in the application of the music grant in order to render the work done for it a reality. At present, doubtless, the songs learnt by ear form a pleasurable school exercise, and on the principle laid down by Fuller, that "verses are twice as light as the self-same bulk in prose," they may convey in an easy form wholesome moral teaching, but it is difficult to see why a premium should be paid for what is, if it is this and nothing more, a part of the ordinary school work. Remembering that higher musical education receives little if any encouragement from the State no logical defence can be offered for the continuance of the present state of things in regard to what it is even a misnomer to term elementary musical instruction.

When we leave the field of education and turn to the practical side of the art we find the usual liberal supply of concerts, many of which, however, have but little claim to rank as anything more than the provision of a pleasant two hours entertainment on a remunerative system. So long as a large section of the public demands nothing more than popular songs repeated *usque ad nauseam* by popular singers with the same "graces" thrown in at the same points, and "the finish on the high note,"

which to many persons is the greatest proof of ability, instead of being esteemed in its true character as a mere vocal trick which often completely destroys the effect the composer intended to produce, so long will the supply be provided; but in the meantime it is pleasant to note signs of a healthier growth, not only in the maintenance of a high standard in many quarters, but in a gradual elevation of taste and style elsewhere. In orchestral music the Saturday Concerts at Sydenham served to bring forward many novelties, including Hoffman's symphony "Frithjof"; a scherzo by Mr. A. C. Mackenzie, a well-known Edinburgh violinist; a Beethoven fragment heard, strange to say for the first time, consisting of an "Allegro" for violin and orchestra in C major; a Prelude and Fugue by Francis Davenport, a pupil of Dr. G. A. Macfarren, and winner of the prize in the Alexandra Palace Symphony competition; Raff's eighth symphony "The Voice of Spring"; a concert overture by the Birmingham composer, Dr. Swinnerton Heap; a MS. concerto for pianoforte and orchestra by Mr. Shakspeare, the Mendelssohn scholar of 1871, and director of orchestral practices at the Royal Academy; Le Rouet d'Omphale, a "poème symphonique," by M. Samt-Saens, the French organist and composer; Mr. Prout's cantata "Hereward," already once heard at his own East London Concerts; a MS. pianoforte concerto by Mr. H. H. Parry, a well-known English amateur; and Praeger's Symphonic Prelude to Byron's Manfred. For his own benefit concert the admirable and energetic conductor, Mr. Manns, issued an invitation to the audience on a previous Saturday to select the composers by vote. Beethoven's Pastoral Symphony was at the head of the poll; Mendelssohn's "Scotch" ran it very hard as the second favourite; while Handel's Largo in G, and Wagner's overture to *Tannhäuser* also found much favour. Among the other orchestral performances of the season the concerts of the Philharmonic Society deserve mention. Its programmes provided a moderate infusion of works by English composers, including Macfarren's overture "Hero and Leander," written for the Brighton Festival; Harold Thomas's overture "Mountain, Lake, and Moorland"; C. E. Stephens' MS. overture "A Recollection of the Past"; Sullivan's E minor Symphony; Macfarren's overture to "St. John the Baptist"; while of unheard music by continental writers there was an overture by Goetz, "Fruhlings."

In the Choral performances of the year, the Handel Festival

naturally crowned the height. The attendance showed a marked increase on the previous festival, and the general execution, especially of the choir, was far better than in the past. The programme differed but little from its predecessors, the only change made being in the middle-day's work, which included the Dead March from *Sampson* instead of *Saul*, and one of the orchestral concertos written by the great Saxon for the little band of his time, and a favourite piece at the Ancient Concerts. The solo vocalists included Mdmes. Albani, Adelina Patti, Lemmens-Sherrington, Anna Williams, Osgood, Trebelli, and Patey; and Messrs. Vernon Rigby, Barton McGuckin, Maas, Lloyd, and Santley. Sir Michael Costa conducted once again. The Sacred Harmonic Society's last season at Exeter Hall supplied nothing worthy of note. The Bach Choir gave two admirable concerts, including Beethoven's Mass in D. Mr. Henry Leslie's Choir in its really final season, kept almost entirely to the more familiar works in its rich répertoire, and on singing its last note signalized the occasion by a presentation of 300 guineas and a handsome silver salver to Mr. Leslie, the appreciation of the services of the eminent conductor by the general public being adequately expressed by Sir Thomas Gladstone, who presided on the interesting occasion.

Turning from the greater to the less, as far as the body of sound is concerned, we come to the Chamber Music of the year, with the final series of the Musical Union Matinées under Professor Ella's rule. The artists included Papini and Auer (first violin), with Wiener, Hollander, Hann, and Lasserre, and an exceptionally strong list of pianists—Mdme. Montigny-Remaury, Duvernoy, Scharwenka, J. Wieniaswki, Beringer, and von Bulow. The programmes, with the exception of the piano solos, consisted exclusively of the most delightful of the compositions played during the thirty-six seasons. Better work for art has never been done in the concert-room than that of Professor Ella, for it must not be forgotten that when he commenced his enterprise in 1844 a perfect performance of a quartet was a thing almost unknown to the ordinary concert-goer. The Monday Popular Concerts, with their connected Saturday Afternoon Performances have been maintained with all their normal attractions.

The record of the London Musical Season would be incomplete without a word of praise to Mr. Carl Rosa's splendid presentation of opera in English at Her Majesty's Theatre, the popular

conductor's illness during the greater part of his company's stay in the metropolis forming the only cause for regret. One of the features of the season was the production of "The Taming of the Shrew," of Goetz, and the "Mignon" of Ambroise Thomas. The performances of Wagner's "Lohengrin" and "Tannhäuser" showed in the most unmistakable fashion the completeness of the band and the excellence of the choir, while the artists included Miss Hauk, Mdme. Dolaro, Miss Gaylord, Miss Burns, Miss Yorke, Mr. Lyall, Mr. Crotty, and Herr Schott. At Covent Garden, and at Her Majesty's, the Italian Opera seasons presented but little artistic result. At the latter house Boito's "Mefistofele" and a splendid performance of "Lohengrin" under Richter's baton alone served to redeem the season from dulness; but at the former Cohen's "Estella" did not even perform that useful function, no case of a more complete fiasco being on record in the fortunes of the historic house. Among the *débutantes* of Messrs. Gye's season Madame Sembrich may be named, but with Madame Patti and Madame Albani no new stars were needed to bring full houses. Never since the houses were opened have the directors trusted more to their *prime donne*, and less to what ought to form their chief claim to public support, than in the seasons of 1880.

In the provinces, the annual festivals at Edinburgh and Brighton, and the triennial meetings at Gloucester and Leeds, supplied several red-letter days in the musical calendar, while in the suburbs of the metropolis the Borough of Hackney Choral Society, under Mr. E. Prout's direction, has produced works of the first rank with a band and choir of such excellence as to equal if not to excel the performances of the urban concert rooms. At Highbury the local Philharmonic Society brought to a first hearing, under the composer's beat, a newly written cantata "Boadicea," by Dr. Bridge, of Westminster Abbey. The critics proclaimed it to be a clever and original work.

The year has taken with it many musicians of note; and first and foremost the veteran organist of St. Paul's Cathedral, Sir John Goss; Mr. Coward, another well-known master of the keys; and yet a third London organist of note, Mr. J. T. Cooper, of Christ Church, Newgate Street. The death of Mr. John Curwen, the venerable nonconformist minister who had become absolutely identified with the popularisation of the Tonic Sol-fa system, has deprived the art of one of its most indefatigable workers and enthusiastic admirers.

METROPOLITAN PHILANTHROPY IN 1880.

THE extent to which the resources of our charitable institutions are dependent upon the prosperity of the nation was never more clearly shown than in the years 1878 and 1879, when the depression in commercial and agricultural circles, following upon the bank failures which had brought ruin to so many homes, served to reduce the incomes not only of the hospitals but of the chief religious and benevolent societies. During the early part of the year 1880 a change for the better was noticeable, and when in June the annual Hospital Sunday collection was made, the amount exceeded that of any previous year, an indication, which may be safely accepted, that when the financial year closes the treasurers of the metropolitan charities will be enabled to report a partial recovery if not a complete restoration of the former satisfactory condition of affairs. If we were to look in any other direction for an explanation of the temporary tightness of the charitable money market it might perhaps be found in the growing inclination among philanthropists to support local institutions over which they can exercise some degree of personal control, and it will, we believe, be found that this disposition will increase, and men who have time and money to give to work for the public good will resist the tendency to centralisation, and will prefer, as far as possible, to be their own almoners. It follows also, almost as a matter of course, that in a day when greater activity and improved organisation are met with among all the religious bodies their leaders will endeavour to localise public beneficence, and to appropriate and disburse on the spot money which has hitherto found its way to the treasury of some metropolitan institution. Instead of regretting this decentralising movement, it should, on the contrary, be most cordially welcomed; for the provision in each district of its own agencies for the relief of the distressed, for the cure of the sick, and for the assistance of the widow and the orphan must tend to check the leakage of public benevolence which has involved the loss, and it may almost be said the waste of large sums of money. There would, it is true, be a necessity for some central institutions, even if a sort of philanthropic Utopia could be set up in every neighbourhood, but the nearer we approach to the primitive ideal of local relief-societies, administered by persons animated by pure motives and well acquainted with the circumstances of those who apply for aid, the more truly will charity fulfil her proper

functions. That there are signs that public feeling is setting in this direction, will not, we think, be denied : it only remains for those who have the power and the will to direct and control the impulse.

The work of charity organization whether the term be used with special reference to the Charity Organization Society, or generally, has made good progress, and not the least useful end which it has promoted has been the prevention of imposition and the detection of fraud. In its own organ, the *Charity Organization Reporter*, the Society systematically pillories swindlers, while it has also adopted the very useful plan of advertising in the *Times* cautions against the bolder and more shameless thieves. As an illustration which has come under our own notice of the extreme difficulty of extinguishing the nefarious trade of obtaining money for sham charities we may mention a case in which a person who has been frequently held up to public execration by the central society, and has become so notorious that he has found it advisable to desist from advertising for funds in London papers, is now plying his business in suburban journals and will doubtless thrive upon the credulousness of their readers until he is again followed up. The work which the Charity Organization Society does in this way, is worthy of the highest praise, for it not merely amounts to the prevention of fraud, but it sets free for devotion to works of real charity the money which would otherwise find its way into the pockets of utterly worthless persons. Even the begging-letter system is, however, still largely and successfully adopted, and among the cases which the Society has unearthed during the year may be mentioned those of two clergymen, one of whom appealed for funds to build a church in a parish from which he had been absent for three years, while the other had been deprived of his benefice for simony. At a time when such an institution as the Charing Cross Hospital is compelled to close thirty beds owing to lack of funds it is a work of genuine charity to bring to light such cases as these.

In connection with the hospitals of the metropolis the year has witnessed the issue of the first Report of the North-West London Hospital, 18 and 20 Kentish Town Road, an addition to the list of the General Hospitals. Its income for the year 1879 amounted to the modest sum of 1,056*l.* and it is obvious therefore that much remains to be done before it can be placed in a position adequately to supply the wants of the district. Although not

avowedly established as a Provident Hospital, in which all patients are required to pay their quota, it is one of the rules that those who are able to do so shall pay small sums towards the cost of their maintenance and treatment. Another event of the year has been the opening of the first of the establishments of the Home Hospitals Association, the promotion of which by Mr. H. C. Burdett has been referred to in previous editions of the *Companion*. The house secured for the purpose is situated in Fitzroy Square, and will accommodate seventeen patients, who are to pay from three to six guineas a week exclusive of the cost of medical attendance. The authorities of St. Thomas's Hospital have also obtained the sanction of the Charity Commissioners for the admission of paying patients as a part of their regular system. The first part of their scheme includes the establishment of "paying wards" on the home hospital system in a part of the hospital set aside for that purpose. These wards have separate medical administration and a medical officer in charge, who will be paid out of the funds supplied by the payments of the patients. A patient admitted to the wards is allowed the option of calling in consultation any medical man whom he pleases as his own visiting attendant, and he will arrange separately with such medical attendant as to fees as though living in his own chambers. Another part of the scheme contemplates admission at lower rates to the ordinary wards of patients who will be scattered throughout the wards, and who will make payment on a scale calculated only to meet the cost of maintenance. In this way it is intended that the whole of the available beds at St. Thomas's Hospital shall be utilised.

The collection on Hospital Sunday in London was, as we have already said, above the average. The following is a statement of the Hospital Sunday Collections in the metropolis in each year since its establishment:—

1873	..	..	£27,700	1877	..	..	£26,083
1874	..	..	29,936	1878	..	..	24,904
1875	..	..	26,396	1879	..	..	26,501
1876	..	..	27,042	1880	..	..	30,404

In connection with the general management of the hospitals, the system of Nursing has occupied a considerable share of attention during the year. The practical conclusion on the matter, apart from all personal and local feeling, must be that even the improved methods of nursing and the more kindly and sympathetic treatment of the patients which are admitted on all sides to have resulted from the introduction of women of culture

and refinement as "sisters" or nurses would be too dearly purchased if the physician or surgeon were relieved of one iota of control or responsibility, and the only possible issue from such painful and at times intemperate controversies as that which has arisen must be to uphold the professional authority, while at the same time every guarantee is required for its proper exercise.

Outside the walls of the general hospitals the local dispensaries have continued to work well, and the Metropolitan Provident Medical Association has been formed to extend the system and to furnish advice and assistance wherever they are required. The promoters of dispensaries will now be enabled to obtain all the counsel and assistance which they are likely to need and as a result it may be hoped that the plan will be gradually adopted in every part of the country. The mode of working the dispensaries throughout a county on a uniform system, by means of a central union, which was introduced in Suffolk through the influence of Sir Edward Kerrison, has now been adopted in South Lincolnshire and is being promoted in Leicestershire with a Provident Dispensary with 25,000 members as the centre of the organization.

Another method of attaining the same end which is reached by the Provident Dispensary is being successfully worked in some parts of the metropolis by the formation of "Sick Clubs," the meetings of which are held in schoolrooms instead of at public-houses. The object of these associations is, as defined by their rules—we quote from those of the Hammersmith Sick Club—"to enable the working classes to insure for themselves and their families efficient medical advice and their own family doctor with home attendance when necessary, and medicine during illness by their own small periodical payments." Those qualified to become members are "working persons and servants, their wives and children, who are unable to pay for medical advice in the usual manner." Every member above fourteen years of age pays 1*d.* a week and under that age 0½*d.* a week, but a payment of 2*d.* a week procures what may be termed a family ticket, as it entitles a man and his wife with all their children under fourteen to all the benefits of the club. Servants are admitted to membership on payment of five shillings a year. In the Hammersmith Club, which has been in existence for five years, 395 members with their families joined during 1879, and the amount received was nearly 100*l.* in excess of that of the previous year. More than 5,000 persons

have been on the roll of the club since its institution. At a similar club in the neighbouring parish of Fulham a year's receipts are stated to have reached 600*l.* and 1,178 members, many with large families, were entitled to the benefits. If these cannot strictly be termed charitable institutions they are at least entitled to honourable mention as philanthropic agencies, and are well worthy of encouragement.

Another form of aid to the sick—the Convalescent Hospital—is, it is satisfactory to learn, being actively supported, and it would be difficult to over-estimate its importance. As a means of enabling those who are eligible for such institutions to ascertain where they can be received, a plan has been adopted of inserting a list of vacancies in the *Charity Organization Reporter*, giving full information as to locality, dates when persons can be admitted, etc. There is, however, as the Duke of Northumberland pointed out in a recent speech on the subject, much still to be done in this respect. In most cases, as the Duke said, after the sick man, only partially restored to health, leaves the ordinary hospital, he has as his only resource to return to his home—generally to miserable food and lodging. As a consequence he drags on, unable to find work, and, indeed, he would be unable to discharge any employment if he obtained it. A few weeks passed in the fresh air in a comfortable lodging, with necessary food, might restore him perfectly to health; but he is incapable of going to that expense. We entirely agree with the Duke in believing that the greatest possible good would result and the greatest possible benefit would accrue to all by an increase in the number of Convalescent Hospitals to receive such cases.

The occurrence of several terrible Colliery accidents has again directed public attention to the question of establishing what Mr. David Chadwick has termed a "National Fatal Accident Fund." The proposal when originally made two years since received the approval of Her Majesty the Queen, but it has never been brought forward in any practical shape, and Mr. Chadwick now suggests that it should be promoted on self-supporting principles, rather than as a charity. There can be no question as to the boon which such an institution would prove, for it would in effect place life insurance on the most economical basis within the reach of men engaged in what may be termed dangerous occupations. It would, moreover, be far more satisfactory to establish such a fund as a provident institution than to promote it on eleemosynary principles, for there is, as the experience of

the Patriotic Fund proves, a tendency in gigantic charities to develop into proportions which make it difficult for amateur managers to control them.

Among other novel plans with which the year 1880 has been pleasantly freighted is one for sending children from the crowded London streets to country parishes for change of air, not as invalids, but to give them what an advocate of the scheme terms "the unmixed blessing of country air, interests, and pleasures." The clergy of St. Jude's, Whitechapel, seem to deserve the credit of publishing if not of suggesting the scheme and the *modus operandi* as set forth by one of them is simple enough. "We ask country squires and parsons," he writes, "to find cottages where we can place one or more children for three weeks or a month, paying 4*s.* or 5*s.* a week for each child. We thus benefit the cottager as well as the town child outwardly by payment, inwardly by new interests and friendships." One hundred and seventy children were thus sent last year from St. Mark's and with the most satisfactory result. This furnishes a confirmation of the remark which we made at the opening of our *résumé*—that there is a growing disposition in many quarters to make local efforts to supply local needs, and if in every parish the richer inhabitants who have country friends would take up such an idea as this the scheme might soon be brought into general operation.

To care for the country folk who come to town for work is another branch of the truest philanthropy which is being entered upon with the utmost energy, and affords a fitting opening for ladies' influence especially in connection with their own sex. The Homes for Working Girls, which owe their existence to Mr. John Shrimpton, have received an addition during the year, and the Metropolitan Association for befriending Young Servants is doing excellent work.

The charity literature of the year, using the term in its widest sense, includes the reports of the special committees of the Charity Organization Society, on the "Dwellings of the Poor" and on "Convalescent Homes," both of which present a large amount of valuable information on these important subjects. The reports can be obtained for one shilling each, at the Society's Offices, 15, Buckingham Street, Strand. Mr. H. C. Burdett's useful work on "Cottage Hospitals," published by Messrs. Churchill, has reached another edition, and has received careful revision and many additions.

TABLE OF ALL THE PUBLIC GENERAL ACTS

PASSED IN THE SEVENTH SESSION OF THE TWENTY-FIRST PARLIAMENT OF GREAT BRITAIN AND IRELAND.

43 VICTORIÆ. A.D. 1880.

(The Acts are given in the order in which they were passed, the number denoting the chapter. An Abstract of those Acts distinguished by an asterisk is given in the pages following this table, which contain a classified epitome of the more important statutes passed during the session.)

*1. An Act to enable Guardians of the Poor to borrow Money for the purpose of procuring Seed Potatoes and Seed Oats, and other Seed for Tenants in Ireland; and for other purposes.

(Empowers Guardians of the Poor to borrow money for purposes of the Act.
Applies Petty Sessions (Ireland) Acts, 14 & 15 Vict. c. 93, and 22 Vict. c. 14.)

2. An Act to amend the Artizans and Labourers' Dwellings Improvement (Scotland) Act, 1875.

(Amends 38 & 39 Vict. c. 49, Artizans and Labourers' Dwellings Improvement (Scotland) Act, 1875.
Applies (as to Nuisances) 30 & 31 Vict. c. 101; Public Health (Scotland) Act, 1867.)

3. An Act to amend the Law relating to the Salaries and Allowances of certain Officers in India; and for others purposes relating thereto.

Repeals s. 89, in part, of 53 Geo. 3, c. 155; } East India Company's Charter.
,, s. 76, in part, of 3 & 4 Will. 4, c. 85; }
,, s. 3 in part, of 4 Geo. 4, c. 71; Retiring Pay, Pensions, &c. (India).)

*4. An Act to render valid certain proceedings taken for the Relief of Distress in Ireland, and to make further provision for such Relief; and for other purposes.

(Empowers Guardians of the Poor to borrow money for purposes of the Act.
Applies 1 & 2 Vict. c. 56; Poor Law, and Acts amending same.
,, 10 & 11 Vict. c. 32; Land Improvement, and Acts amending same.
,, 41 & 42 Vict. c. 52, and 42 & 43 Vict. c. 57; Public Health (Ireland) Acts, 1878 and 1879.
,, 33 & 34 Vict. c. 46; Landlord and Tenant (Ireland) Act, 1870.
Extends Borrowing Powers of Commissioners under 32 & 33 Vict. c. 42; Irish Church Act, 1869.)

5. An Act to apply certain Sums out of the Consolidated Fund to the service of the years ending on the 31st of March, 1880 and 1881.

(Applies £3,982,902 3*s.* 3*d.* and £16,641,300).

*6. An Act for amending the Law relating to the grant by Justices of Certificates for Beer Dealers' Retail Licences.

(Repeals s. 8 of 32 & 33 Vict. c. 27; Wine and Beerhouse Act, 1869.
,, s. 31 of 37 & 38 Vict. c. 49; Licensing Act, 1874.
Amends 26 & 27 Vict. c. 33; Inland Revenue Duties.
Applies 35 & 36 Vict. c. 94; Licensing Act, 1872.)

7. An Act to amend the Law in regard to charging Road Debts on Entailed Estates in Scotland.

(Amends s. 70 of 41 & 42 Vict. c. 51; Roads and Bridges (Scotland) Act, 1878.)

8. An Act to explain and amend the twenty-second section of the Artizans and Labourers' Dwellings Act, 1868, Amendment Act, 1879.

(Amends s. 22 of 42 & 43 Vict. c. 24; Artizans and Labourers' Dwellings Act, 1868, Amendment Act, 1879.)

9. An Act to provide during twelve months for the Discipline and Regulation of the Army.

(Continues 42 & 43 Vict. c. 33; Army Discipline and Regulation Act, 1879.)

*10. An Act to enable the Secretary of State in Council of India to raise money in the United Kingdom for the purpose of paying off or redeeming Debentures of the East Indian Railway Company.

(Recites 42 & 43 Vict. c. ccvi; East Indian Railway Company Purchase Act, 1879; and empowers Secretary of State in Council of India to raise £2,950,000. for purposes of Act.
Applies 5 & 6 Will. 4, c. 64; as to Composition for Stamp Duties.
" 22 & 23 Vict. c. 35; as to East India Stock.
" 26 & 27 Vict. c. 73; as to India Stock.
" 33 & 34 Vict. c. 93; Married Women's Property Act, 1870.
" 34 & 35 Vict. c. 29; East India Stock (Dividends) Act, 1871.)

*11. An Act to make Powers of Attorney and Requests for Transmission of Dividend Warrants by Post relating to India Five per centum Stock applicable to India Four per centum Stock.

(Applies 34 & 35 Vict. c. 29; as to Transmission by Post of Powers of Attorney and Dividend Warrants.)

12. An Act to abolish the Landlord's Right of Hypothec for Rent in Scotland.

(Determines Landlord's Right of Hypothec after 11th November, 1881.)

13. An Act to apply certain sums out of the Consolidated Fund to the service of the years ending on the 31st of March, 1879, 1880, and 1881, and to appropriate the Supplies granted in this Session of Parliament.

(Authorises issue of £9,552,927 9s. 10*d*. out of Consolidated Fund, and appropriation of the same.)

14. An Act to grant certain Duties of Customs and Inland Revenue, to alter other Duties, and to amend the Laws relating to Inland Revenue.

Customs:—
Continues Duties on Tea.
Provisions as to Foreign Spirits bottled.
Taxes:—
Grants Duties of Income Tax, and applies provisions of former Acts.
Provisions as to Assessment of Income Tax, and of Inhabited House Duties.
Amends s. 11 of 39 & 40 Vict. c. 45; Industrial and Provident Societies Act, 1876, as to Income Tax.
Stamps:—
Grants Duties on Probates and Letters of Administration.
Applies and amends 55 Geo. 3, c. 184, 55 Geo. 3, c. 56, and 20 & 21 Vict. c. 77.
Empowers commutation (in certain cases) of Legacy or Succession Duty, and applies 16 & 17 Vict. c. 51.
Provision for relief from Legacy Duty where personal estate is less than £100.)

*15. An Act to authorise the Commissioners of Her Majesty's Treasury to borrow a sum on the security of Terminable Annuities, and to increase the permanent Annual Charge of the National Debt.

(Amends 38 & 39 Vict. c. 45; Sinking Fund Act, 1875.)

16. An Act to raise the sum of £60,000 by Exchequer Bonds, Exchequer Bills, or Treasury Bills, for the service of the year ending on the 31st March, 1880.

(Applies 29 & 30 Vict. c. 25; Exchequer Bills and Bonds Act, 1866.
" 40 & 41 Vict. c. 2; Treasury Bills Act, 1877.)

*17. An Act to abolish the property qualification for members of Municipal Corporations and Local Governing Bodies.

(Abolishes Property Qualification.
Applies 5 & 6 Will. 4, c. 76; Municipal Corporations Act, 1835.
" 9 Geo. 4, c. 82; Lighting, &c., of Cities and Towns (Ireland).)

*18. An Act to amend the Law relating to the Conveyance of Voters to the Poll, and to continue the Acts relating to the Prevention of Corrupt Practices at Parliamentary Elections and the Acts relating to Election Petitions.

(Repeals s. 36 of 30 & 31 Vict. c. 102; as to Conveyance of Voters.
Applies 35 & 36 Vict. c. 33; Ballot Act, 1872.

Continues the following Acts, viz.:—
17 & 18 Vict. c. 102;
21 & 22 Vict. c. 87;
26 & 27 Vict. c. 29;
} Corrupt Practices Prevention Acts, 1854, 1858, 1863.
31 & 32 Vict. c. 125; Parliamentary Elections Act, 1868.
32 & 33 Vict. c. 21; Corrupt Practices Commission Expenses Act, 1869.
34 & 35 Vict. c. 61; Election Commissioners Expenses Act, 1871.
42 & 43 Vict. c. 75; Parliamentary Elections and Corrupt Practices Act, 1879.)

*19. An Act to amend the Companies Acts of 1862, 1867, 1877, and 1879.

(Amends and applies 25 & 26 Vict. c. 89;
" " 30 & 31 Vict. c. 131;
" " 40 & 41 Vict. c. 26;
" " 42 & 43 Vict. c. 76;
} Companies Acts, 1862, 1866, 1877, and 1879.)

THE LEGISLATION OF THE TWENTY-FIRST PARLIAMENT OF GREAT BRITAIN AND IRELAND.

The twenty-first Parliament of Great Britain and Ireland, the ninth of Queen Victoria, was opened on 5th March, 1874, when Mr. Brand was re-elected Speaker and Lord Cairns sat as Lord Chancellor on his second accession to the office, the post of First Lord of the Treasury being filled by Mr. Disraeli. The following is a table of the number of public general Acts passed in each year from 1874 to 1880, when, on the 24th March, the Parliament was dissolved:—

Year.	Of the Queen's reign.	No. of Public Acts.
1874	37 & 38 Vict.	96
1875	38 & 39 Vict.	96
1876	39 & 40 Vict.	81
1877	40 & 41 Vict.	69
1878	41 & 42 Vict.	79
1879	42 & 43 Vict.	78
1880	43 Vict.	19
	Total ..	518

The following were the principal subjects of the legislation of the six and a-half years:—1874, Building Societies (c. 42); Licensing (c. 49); Public Worship Regulation (c. 85); and Sanitary Laws Amendment (c. 89). 1875, Bishopric of St. Albans (c. 34); Supreme Court of Judicature (c. 77); Peace Preservation (Ireland) (c. 14); Friendly Societies (c. 60); Employers and Workmen (c. 90); Artisans' Dwellings (c. 36). 1876, Bishopric of Truro (c. 54); Elementary Education (c. 79); Appellate Jurisdiction (c. 59); Merchant Shipping (c. 80); Industrial and Provident Societies (c. 45). 1877, Universities (c. 48); Prisons (c. 21); Free Libraries (c. 54). 1878, Additional Bishoprics (c. 68); Parliamentary and Municipal Registration (c. 26); Factories and Workshops (c. 16). 1879, Limited Liability Companies (c. 76); Public Prosecutor (c. 22); Public Health (Interments) (c. 31); Artisans and Labourers' Dwellings (c. 64); Habitual Drunkards (c. 19). 1880, Seed Supply (Ireland) (c. 1); Relief of Distress (Ireland) (c. 4).

ABSTRACTS OF IMPORTANT ACTS

PASSED IN THE SEVENTH SESSION OF THE TWENTY-FIRST PARLIAMENT OF GREAT BRITAIN AND IRELAND.

1. FINANCE AND TAXATION.

PUBLIC COMPANIES.

[43 Victoriæ, cap. 19.—24th March, 1880.]

By section 1 the short title of this Act is to be "The Companies Act, 1880," and by section 2 it is to be construed as one with the Companies Acts of 1862, 1867, 1877, and 1879, and may be referred to as the Companies Acts, 1862 to 1880. By section 3 accumulated undivided profits may by special resolution be returned to shareholders in reduction of paid-up capital. Under section 4 no resolution to this effect is to take effect till particulars have been registered by the Registrar of Joint Stock Companies. Section 5 gives power to any shareholder within one month after passing of resolution to require the Company to retain moneys paid upon shares held by such shareholder. By section 6 from and after such reduction of capital the Company is to specify in the annual lists of members, to be made by them in pursuance of section 26 of "The Companies Act, 1862," the amounts which any of the shareholders of the Company have required the Company to retain, and which the Company has retained, and the Company is to specify in the statements of account laid before any general meeting of the Company the amount of the undivided profits of the Company which shall have been returned to the shareholders in reduction of the paid-up capital of the Company under this Act. Section 7 empowers the Registrar of Joint Stock Companies where he has reasonable cause to believe that a Company, whether registered before or after the passing of this Act, is not carrying on business or in operation, to send to the Company by post a letter inquiring whether it is carrying on business or is in operation. In default of reply within 14 days the registrar is to send a registered letter by post repeating the enquiry, and stating that if an answer is not received to the second letter within one month from the date thereof, a notice will be published in the Gazette with a view to striking the name of the Company off the register. In default of an answer or in the event of a reply that the Company is not carrying on business or in operation, the Registrar may publish in the Gazette, and send to the Company a notice that at the expiration of three months from the date of that notice the name of the Company mentioned therein will, unless cause is shown to the contrary, be struck off the register and the Company will be dissolved, and steps are to be taken to this end: Provided that the liability (if any) of every director, managing officer, and member of the Company shall continue and may be enforced as if the Company had not been dissolved. If any Company or member thereof feels aggrieved by the name of such Company having been struck off the register in pursuance of this section, the Company or member may apply to the

superior court in which the Company is liable to be wound up; and such court, if satisfied that the Company was at the time of the striking off carrying on business or in operation, and that it is just so to do, may order the name of the Company to be restored to the register, and thereupon the Company shall be deemed to have continued in existence as if the name thereof had never been struck off; and the court may by the order give such directions and make such provisions as seem just for placing the Company and all other persons in the same position as nearly as may be as if the name of the Company had never been struck off.

POWERS OF ATTORNEY AS TO INDIA STOCK.

[43 Victoriæ, cap. 11.—19th March, 1880.]

An Act to make Powers of Attorney and Requests for Transmission of Dividend Warrants by Post relating to India Five Per Centum Stock applicable to India Four Per Centum Stock.

The preamble recites the Act of the Secretary of State for India in redeeming at par on 5th July, 1880, the India five per cent. stock, and giving in lieu of repayment in cash a like amount of India four per cent. stock, and declares it to be expedient that powers of attorney and requests for transmission of dividend warrants by post relating to India five per cent. stock should be made to extend and apply to India four per cent. stock. Section 1 gives the short title of the statute as "The India Stock (Powers of Attorney) Act, 1880." By section 2 every power of attorney in force at the time of the passing of this Act for the sale and transfer of any India five per cent. stock is, unless it be legally revoked or become void, to remain in force for the purpose of enabling the attorney or attorneys therein named or referred to, to receive and give receipts for any principal sum of such India five per cent. stock, and to sell and transfer any India four per cent. stock that may be accepted in exchange for such five per cent. stock, and to receive the consideration money and give receipts for the same. By section 3 powers of attorney for receipt of dividends on India five per cent. stock are to apply to India four per cent. stock, and by section 4 requests for post dividend warrants in respect of India five per cent. stock are to apply to India four per cent. stock.

NATIONAL DEBT.

[43 Victoriæ, cap. 15.—24th March, 1880.]

An Act to authorise the Commissioners of Her Majesty's Treasury to borrow a sum on the security of Terminable Annuities, and to increase the permanent Annual Charge of the National Debt.

By section 1 the short title of this Act is "The National Debt Act, 1880." Section 2 empowers the Commissioners of Her Majesty's Treasury from time to time during the financial year ending the 31st March, 1881, to borrow any sum or sums, not exceeding in the whole 6,000,000*l.*, by the creation of terminable annuities for any term not exceeding five years from the 31st March, 1880. All money so borrowed is to be placed to the credit of the account of Her Majesty's Exchequer, and form part of the Consolidated Fund. The annuities so created are to be payable at such times in each year as may be

fixed by the Treasury Commissioners, and to be charged on the Consolidated Fund of the United Kingdom, and be paid out of the permanent annual charge for the National Debt. They are to be created by warrant of the Treasury Commissioners to the Governor and Company of the Bank of England, directing them to inscribe in their books the amount of such annuities in the names directed by the warrant. By section 3, for the period of five financial years, commencing on the 1st April, 1880, the permanent annual charge for the National Debt is to be 28,800,000*l.*, and during that period "The Sinking Fund Act, 1875," is to be construed as if 28,800,000*l.* were substituted in the first section of that Act for 28,000,000*l.*

EAST INDIA LOAN.

[43 Victoriæ, cap. 10.—19th March, 1880.]

An Act to enable the Secretary of State in Council of India to raise Money in the United Kingdom for the purpose of paying off or redeeming Debentures of the East India Railway Company.

The preamble recites that, by virtue of "The East India Railway Company's Purchase Act, 1879," the property of the Company has become vested in the Secretary of State in Council of India, subject to such debts as the Company has incurred, which debts are secured by debentures amounting to 2,950,000*l.*, and that it is expedient that provision should be made for paying off or redeeming the debentures when the principal moneys secured thereby become payable. Section 1 empowers the Secretary of State for India to raise at any time, for the service of the Government of India, such sums, not exceeding in the whole 2,950,000*l.*, as may be required for the purpose of paying off or redeeming the principal moneys, secured by the debentures specified in the schedule, such sum or sums to be raised by the creation and issue of bonds, debentures, or capital stock bearing interest, or partly by one of such modes and partly by another or others. By sections 2 and 3 all bonds and debentures under this Act may be issued under the hands of two members of the Council of India, and countersigned by the Secretary of State or one of his Under Secretaries or his Assistant Under Secretary, on such rates and terms as the Secretary of State may think fit. By section 4 all debentures issued under the authority of this Act are to be paid off at par at a time or times to be mentioned in them, and the interest on them is to be paid half-yearly, on such days as shall be mentioned; and the principal moneys and interest secured by them is to be payable either at the Treasury of the Secretary of State in London or at the Bank of England. By section 5 all or any number of the debentures issued under this Act, and all right to and in respect of the principal and interest moneys secured thereby, are to be transferable by the delivery of such debentures, and the coupons for interest annexed to any debenture issued under the authority of this Act are also to pass by delivery. Any capital stock created under the authority of this Act is, by section 6, to bear such a rate of interest as the Secretary of State may think fit, and may be issued on such terms as he may determine, and bear interest during such period, and be paid off at par at such time, as he may prescribe previously to the issue of such capital stock. Section 7

provides for the keeping either at the office of the Under Secretary of State or at the Bank of England transfer books of all capital stock under this Act. By section 8 the whole amount of the principal moneys to be charged on the revenues of India under this Act is not to exceed 2,950,000*l.* Section 9 enables the Secretary of State to raise money for the payment of the principal money, and under section 10 all bonds and debentures to be issued under this Act, and the principal moneys and interest thereby secured, and all capital stock to be issued under this Act, and the interest thereon, are to be charged on and payable out of the revenues of India, in like manner as other liabilities incurred on account of the Government of India. By section 11 the provisions as to composition for stamp duties on India bonds are extended to bonds and debentures issued under this Act. Section 12 makes forgery of bonds under this Act punishable under the laws applying to any East India bond. Section 13 provides that the Act is not to prejudice or affect any power of raising or borrowing money vested in the Secretary of State at the time of passing thereof. By section 14 any capital stock created under this Act is to be deemed to be East India stock, within the terms of 22 and 23 Vict., cap. 35, sec. 32, unless and until Parliament shall otherwise provide; and any capital stock created under this Act shall be deemed to be and shall mean India stock within the terms of 26 and 27 Vict., cap. 73, anything in the said last-mentioned Act to the contrary notwithstanding. The schedule gives the following statement of the redeemable debentures of East Indian Railway Company:—

Principal Moneys secured.	When payable.	Rate of Interest per Annum.
£		
1,000,000	1st January, 1881	4½ per cent.
1,279,850	12th July, 1882	4 ,, ,,
230,150	1st December, 1882 ..	4 ,, ,,
440,000	19th March, 1883	4 ,, ,,
2,950,000		

2. LAW AND JUSTICE.

BEER DEALERS' RETAIL LICENCES.

[43 Victoriæ, cap. 6.—19th March, 1880.]

An Act for amending the law relating to the grant by Justices of Certificates for Beer Dealers' Retail Licences.

The preamble recites that, by "The Wine and Beerhouse Act, 1869" (32 and 33 Vict., cap. 27), and "The Licensing Act, 1874" (37 and 38 Vict., cap. 49), provision is now made for the holder of a strong beer dealer's wholesale excise licence obtaining, on a certificate granted by justices, an additional licence for sale of beer by retail for consumption off the premises, and that it is expedient that justices should be at liberty to exercise their discretion respecting the grant of such certificates, as they are in respect of their certificates for licences for sale of beer to be consumed on the premises, and that such certificates should be granted at the general annual licensing meeting of

justices, and not at any other time. Section 1 repeals section 8 of "The Wine and Beerhouse Act, 1869," as far as the qualification therein contained relates to grants of certificates for such additional licences as aforesaid, and the licensing justices are to be at liberty either to refuse such certificates on the grounds appearing to them in the exercise of their discretion sufficient, or to grant the same to such persons as they, in the execution of their statutory powers and of their discretion, deem fit and proper. Section 2 repeals section 31 of "The Licensing Act, 1874," as from and after the general annual licensing meeting held in any licensing district next after the passing of this Act, and thenceforth certificates for such additional licences are to be granted at general annual licensing meetings, and not at any other time. By section 3 this Act may be cited as "The Beer Dealers' Retail Licences Act, 1880," and it is not to extend to Scotland or Ireland. Words used in this Act are to have the same meaning as in "The Licensing Act, 1872."

CONVEYANCE OF VOTERS TO THE POLL.

[43 Victoriæ, cap. 18.—24th March, 1880.]

An Act to amend the law relating to the Conveyance of Voters to the Poll, and to continue the Acts relating to the Prevention of Corrupt Practices at Parliamentary Elections and the Acts relating to Election Petitions.

Section 1 gives the short title as "The Parliamentary Elections and Corrupt Practices Act, 1880." Section 2 repeals section 36 of "The Representation of the People Act, 1867," 30 and 31 Vict., cap. 102, so far as concerns the conveyance of voters within any borough. By section 3 it is provided that in all elections whatever of a member or members to serve in Parliament for any county, division of a county, or for any city or burgh, or district of burghs in Scotland, no inquiry shall be permitted at the time of polling as to the right of any person to vote, except only as follows (that is to say), that the presiding officer or clerk appointed by the returning officer to attend at a polling station shall, if required on behalf of any candidate, put to any voter at the time of his tendering his vote, and not afterwards, the following questions, or either of them :—

1. Are you the same person whose name appears as A.B. on the register of voters now in force for the county of [or for the division of the county of], or for the city [or burgh] of , or for the district of burghs [as the case may be] ?
2. Have you already voted, either here or elsewhere, at this election for the county of [or for the division of the county of], or for the city [or burgh] of , or for the district of burghs [as the case may be] ?

And if any person shall wilfully make a false answer to either of the questions aforesaid, he is to be deemed guilty of a crime and offence within the meaning of "The Ballot Act, 1872." By section 4 this Act and the Acts mentioned in the schedule to this Act, so far as they are unrepealed, are to continue in force until the 31st December, 1881, and any enactments amending or affecting the enactments continued by this Act are, in so far as they are temporary in their duration, to be continued in like manner. The Acts referred to in the schedule will be found detailed under the statute in the list of Acts.

3. LOCAL GOVERNMENT.

QUALIFICATION FOR MEMBERSHIP OF TOWN COUNCILS AND LOCAL BOARDS.

[43 Victoriæ, cap. 17.—24th March, 1880.]

An Act to abolish the Property Qualification for Members of Municipal Corporations and Local Governing Bodies.

Section 1 enacts that, subject to the conditions named below, every person shall be qualified to be elected and to be a member of a local authority who is at the time of election qualified to elect to any membership of that authority. For the purposes of this section the term "local authority" means (*a*) the council of a borough under "The Municipal Corporations Act, 1835," or any Act amending the same: (*b*) in Ireland, the town council of any town corporate, commissioners appointed by virtue of an Act made under 9 Geo. 4, cap. 82. The qualifications mentioned in this section are to be alternatives for, and not to repeal or take away any other qualification. Nothing in this section is to qualify any person for any office who is disqualified for the office by the existing law by reason of office, contract, bankruptcy, or any other matter of disqualification or disability. If a person qualified under this section ceases for six months to reside within the borough or district in which he has been elected to an office, he shall cease to be qualified under this section, and his office shall become vacant, unless he was at the time of his election and continues to be qualified in some other manner. The short title of the statute is given in section 2 as "The Town Councils and Local Boards Act, 1880." By section 3 Scotland is exempt from the operation of this Act.

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4. SPECIAL LEGISLATION FOR IRELAND.

SEED SUPPLY (IRELAND).

[43 Victoriæ, cap. 1.—1st March, 1880.]

An Act to enable Guardians of the Poor to borrow Money for the purpose of procuring Seed Potatoes and Seed Oats, and other Seed for Tenants in Ireland; and for other purposes.

Section 1 gives the short title of the Statute as "The Seed Supply (Ireland) Act, 1880." Section 2 empowers the Local Government Board, at any time after the passing of this Act, and before the 31st March, 1880, if satisfied that the occupiers of land in any electoral division of any union are generally unable to procure an adequate supply of seed potatoes, seed oats, or other seed, to authorise or, if they think fit, to require the guardians of the poor of the union to put the provisions of this Act in force in reference to such electoral division. The Board may, from time to time, by order made for that purpose, revoke or vary any such order, and alter or add to the schedule of unions in which they have authorised the guardians to put the Act in force. Section 3 empowers the guardians of any union scheduled to apply to the Local Government Board for a loan, and authorises the Commissioners of Public Works to grant such loan,

with Treasury sanction, on the security of the rates levied under Acts for the relief of the poor. By section 4 such loans are to be without interest, and to be repayable by the guardians to the Commissioners of Public Works by two equal instalments, the first to be paid on August 1, 1881, and the second on August 1, 1882. When such loan is made, all rates leviable for any of the purposes of the Acts for the relief of the poor, in the electoral division for which the loan was made, are to become forthwith charged, without any deed of mortgage or other instrument being required, with the repayment of such instalments of the sum lent for the use of the division. Section 5 authorises the Local Government Board to make orders under their seal for the payment of any sums due on account of loans for the purchase of seed which shall remain unpaid in any electoral division; and the treasurer of the union is to pay it out of any money in his hands to the credit of the guardians, or if that be insufficient, out of moneys subsequently received by him on account of the guardians. Section 6 authorises the guardians to apply the whole or any part of the sums borrowed by them for the use of each electoral division in purchasing seed potatoes, seed oats, or other seed which the Local Government Board may authorise, and in defraying all expenses incurred for carriage, storage, or otherwise in providing such seed for sale. Such seed is to be sold by the guardians to occupiers of land and cultivators of land (not being occupiers) on the application of the occupier, and on his security, in the electoral divisions, subject to the provisions of this Act. The section also states the conditions and the terms on which the guardians may sell the seed to occupiers of land, none being sold to any occupier of land valued at more than 15*l*. They may sell:—1. To any such occupier a quantity of seed potatoes sufficient to sow an acre, and of seed oats or other seed sufficient to sow another acre of land, "statute measure:" provided that the total cost of such seed does not exceed 5*l*. for any one occupier; 2. To any person who cultivates for his own use any land under a contract made by him with the tenant of the land a quantity of seed potatoes sufficient to sow a quarter of an acre of land, statute measure, but no such sale is to be made except upon the application of the person who is tenant of the land, and upon his agreeing to pay to the guardians the price of the seed so sold, in the same manner as if the seed had been sold to him; 3. No seed is to be sold for less than the net price paid by the guardians for it, including all expenses incurred for carriage, storage, or otherwise in providing such seed for sale; and 4. No seed is to be sold to any person unless the guardians, or such persons as the Local Government Board may nominate in that behalf, are satisfied that the land into which it is to be put has been properly prepared and is ready for sowing. Section 7 provides for the recovery of the amount due from each person for seed by two equal instalments, which are to be levied by the guardians as part of the poor-rate, or, if he is not so rated, by a special rate levied by the guardians, and recoverable as if it were a poor-rate. Section 8 empowers the guardians, or any person nominated by the guardians or by the Local Government Board, when any seed has been sold under this Act to any person in any union, to enter into and examine any land occupied or tilled by such person, at all reasonable times, for the purpose of ascertaining whether the seed

sold has been properly sown, and they may do all acts reasonably necessary for that purpose. The remaining sections relate to the procedure for recovery of loans in case of default.

RELIEF OF DISTRESS (IRELAND).

[43 Victoriæ, cap. 4.—15th March, 1880.]

An Act to render valid certain proceedings taken for the Relief of Distress in Ireland, and to make further provision for such Relief; and for other purposes.

Section 1 gives the short title of the statute as "The Relief of Distress (Ireland) Act, 1880." Section 3 authorises the Local Government Board to extend the power of guardians to grant relief in food or fuel to poor persons either in or out of the workhouse from the date of the passing of the Act, and before the 31st December, 1880, whether such persons might have obtained relief under the Poor Law Acts or not, and such relief may be continued for any period not exceeding two months from the date of the order. The expense of affording relief under this Act to each person so relieved is to be charged in the same manner as if such expense had been incurred in affording indoor relief to such person under the provisions of the Poor Law Acts. Section 4 gives the guardians power to borrow on the credit of the rates for the purposes of this Act, such sums as the guardians, with the sanction of the Local Government Board, may determine; and for securing the repayment of any sums so borrowed, with interest thereon, they may mortgage to the persons by or on behalf of whom such sums are advanced, the rates leviable on such electoral division or divisions. The money is to be borrowed for such time not exceeding ten years as the guardians, with the consent of the Local Government Board, determine in each case; but the Local Government Board is not to sanction any such loan after the 1st March, 1881. All sums so borrowed are to be repaid by such instalments as may be agreed on with the sanction of the Local Government Board. Section 5 relates to the power of the Board of Works to lend moneys to boards of guardians, and section 5 provides for the repayment of such loans. Sections 6 to 17 provide various rules for carrying out the provisions of the Act. Section 19 extends the borrowing powers of the Commissioners of Church Temporalities in Ireland, so that they shall apply to the purposes of this Act as fully as such provisions apply to the purposes of "The Irish Church Act, 1869." Any advance made by the Commissioners for the reduction of the National Debt to the Commissioners of Church Temporalities for the purposes of this Act, is to be charged upon the property accruing to and to be payable by the Commissioners of Church Temporalities under the said "Irish Church Act, 1869," as if it were part of the debt already owing by the Commissioners of Church Temporalities to the Commissioners for the Reduction of the National Debt, and is to be paid to the latter in priority of all debts due from the said Church Temporalities Commissioners under any statutes except the said "Irish Church Act, 1869." Section 21 exempts from electoral disability any person who may be compelled to accept temporary relief under the provisions of this Act.

TABLE OF ALL THE PUBLIC GENERAL ACTS

PASSED IN THE FIRST SESSION OF THE TWENTY-SECOND PARLIAMENT OF GREAT BRITAIN AND IRELAND,

43 AND 44 VICTORIÆ. A.D. 1880.

(The Acts are given in the order in which they were passed, the number denoting the chapter. An Abstract of those Acts distinguished by an asterisk is given in the pages following this table, which contain a classified epitome of the more important statutes passed during the session.)

1. An Act to appoint Public Works Loan Commissioners; to grant Money for the purpose of Loans by the Public Works Loan Commissioners and the Commissioners of Public Works in Ireland; and for other purposes relating to Loans by those Commissioners.
   (Appoints Commissioners for 5 years under 38 & 39 Vict. c. 89; Public Works Loans Act, 1875.
   Remits interest on loans to Anstruther Harbour Commissioners, incorporated by 23 & 24 Vict. c. 39.
   Remits instalments of principal and interest in respect of River Corrib mill power, chargeable under 5 & 6 Vict. c. 89; Drainage, &c., of Lands (Ireland) Act, 1842.
   Grants £5,000,000 for Loans under 38 & 39 Vict. c. 89, and 42 & 43 Vict. c. 77; Public Works Loans Acts, 1875 and 1879.
   Grants £1,000,000 for Loans by Commissioners of Public Works in Ireland under 40 & 41 Vict. c. 27, and 42 & 43 Vict. c. 77.)
2. An Act to amend the Glebe Loan Acts (Ireland).
   (Amends 33 & 34 Vict. c. 112, 34 & 35 Vict. c. 100, 38 & 39 Vict. c. 30, and 41 & 42 Vict. c. 6.)
3. An Act to apply the sum of £4,925,320 out of the Consolidated Fund to the service of the year ending on the 31st March, 1881.
4. An Act to provide for the appointment of Judicial Factors in Sheriff Courts in Scotland.
   (Amends and applies 12 & 13 Vict. c. 51, for protection of property of incapacitated persons in Scotland.
   Applies 17 & 18 Vict. c. 91; Valuation of Lands, &c. (Scotland) Act, 1854.)
*5. An Act to make provision for borrowing in respect of certain County Bridges.
   (Extends powers of borrowing under 4 & 5 Vict. c. 49; County Bridges Act, 1841.
   Construes Act with 41 & 42 Vict., c. 77; Highways and Locomotives (Amendment) Act, 1878.)
*6. An Act to amend the Representation of the People (Scotland) Act, 1868.
   (Amends 31 & 32 Vict. c. 48; Representation of the People (Scotland) Act, 1868.)
*7. An Act to extend the Union Assessment Committee Acts to single parishes under separate Boards of Guardians.
   (Amends 25 & 26 Vict. c. 103, and 27 & 28 Vict. c. 39; Union Assessment Committee Acts, 1862 and 1864.
   Applies 4 & 5 Will. 4, c. 76; Poor Law Amendment Act, 1834.
   Exempts the Metropolis (as defined by 32 and 33 Vict. c. 67, Valuation (Metropolis) Act, 1869) from operation of Act.)
8. An Act to provide for the raising of Loans on behalf of the Isle of Man.
   (Repeals s. 4 of 26 & 27 Vict. c. 86; Isle of Man Harbours Act, 1863.
   ,, part of s. 6 of 29 and 30 Vict. c. 23; Isle of Man Customs, &c., Act, 1866
   ,, part of s. 20 of 35 & 36 Vict. c. 23; Isle of Man Harbours Act, 1872.

Applies s. 7 of 37 & 38 Vict. c. 8; Isle of Man Harbours Act, 1874.
,, 38 & 39 Vict. c. 89; Public Works Loans Act, 1874.
,, 38 & 39 Vict. c. 83; Local Loans Act, 1875.
,, 40 & 41 Vict. c. 59; Colonial Stock Act, 1877.)

*9. An Act to remove doubts as to the meaning of Expressions relative to Time occurring in Acts of Parliament, deeds, and other legal instruments.

*10. An Act to amend the Law respecting the manner of passing Grants under the Great Seal, and respecting Officers connected therewith.

(Amends 14 & 15 Vict. c. 82; Great Seal Act, 1851.
,, 38 & 39 Vict. c. 77; Supreme Court of Judicature Act, 1875.
,, 39 & 40 Vict. c. 59; Appellate Jurisdiction Act, 1876.)

*11. An Act to authorise the Extension and further Limitation of the Tenures of certain University and College Emoluments limited or to be limited by Orders of the Oxford and Cambridge Commissioners.

(Amends 40 & 41 Vict. c. 48; Universities of Oxford and Cambridge Act, 1877.)

12. An Act to continue certain Turnpike Acts, and to repeal certain other Turnpike Acts; and for other purposes connected therewith.

13. An Act to amend the Law in Ireland relating to the Registration of Births and Deaths.

(Repeals (in part) 26 & 27 Vict. c. 11; Registration of Births and Deaths (Ireland) Act, 1863.
Applies 41 & 42 Vict. c. 52, and 42 & 43 Vict. c. 57; Public Health (Ireland) Acts, 1878 and 1879.
,, 14 & 15 Vict. c. 93; Petty Sessions (Ireland) Act, 1851.)

*14. An Act to amend the Relief of Distress (Ireland) Act, 1880; and for other purposes relating thereto.

(Amends 43 Vict. c. 4; Relief of Distress (Ireland) Act, 1880.
,, 43 Vict. c. 1; Seeds Supply (Ireland) Act, 1880.
Amends and applies 9 & 10 Vict. c. 3; Fishery Piers Act, 1846.
Applies 16 & 17 Vict. c. 136; Grand Jury Presentments (Ireland) Act, 1853.
,, 42 & 43 Vict. c. 77; Public Works Loans Act, 1879.
Defines "Improvements" under 34 & 35 Vict. c. 46; Landlord and Tenant (Ireland) Act, 1870.)

*15. An Act further to amend the Industrial Schools Act, 1866, and the Industrial Schools Act (Ireland), 1868.

(Amends 29 & 30 Vict. c. 118; Industrial Schools Act, 1866.
,, 31 & 32 Vict. c. 25; Industrial Schools (Ireland) Act.)

*16. An Act to amend the Law relating to the Payment of Wages and Rating of Merchant Seamen.

(Repeals (in part) 17 & 18 Vict. c. 104; Merchant Shipping Act, 1854.
Construes Act with Merchant Shipping Acts, 1854 to 1876.
Applies (as to Savings Banks) 24 & 25 Vict. c. 14, 26 & 27 Vict. c. 87, 17 & 18 Vict. c. 104, s. 180, and 19 & 20 Vict. c. 41.
,, 38 & 39 Vict. c. 90; Employers and Workmen Act, 1875.)

17. An Act to make provision for Holidays in the Customs and Inland Revenue Offices in Scotland.

(Applies 34 & 35 Vict. c. 17; Bank Holidays Act, 1871.)

*18. An Act to amend the Merchant Shipping Act, 1854.

(Amends s. 37 of 17 & 18 Vict. c. 104, as to Joint Owners of Ships.)

19. An Act to consolidate Enactments relating to certain Taxes and Duties under the management of the Board of Inland Revenue.

(Consolidates Enactments relating to Land Tax, Inhabited House Duties, and Property and Income Tax.
Repeals Enactments described in the Third Schedule, with certain exceptions and qualifications.
Substitutes a reference to this Act in former Acts as described in the Fourth Schedule.
Applies 5 & 6 Vict. c. 35, and 16 & 17 Vict. c. 34; Income Tax Acts, 1842 and 1853.

Applies 32 & 33 Vict. c. 67; Valuation (Metropolis) Act, 1869.
,, 33 Geo. 3, c. 55, as to levies and distraints.)

*20. An Act to repeal the duties on Malt, to grant and alter certain duties of Inland Revenue, and to amend the Laws in relation to certain other duties.

(Repeals Excise Duties on Malt and on Sugar used in brewing, &c.
Customs Duties on Malt, &c., to cease: Amends s. 42 of 39 & 40 Vict. c. 36; Customs Consolidation Act, 1876.
Alters duties on Brewers' Licences, &c., and Licences for Sale of Liquors by Retail.
Grants Additional duties of Income Tax.
Amends, as to composition for Stamp Duty:—
33 & 34 Vict. c. 24; Metropolitan Board of Works (Loans) Act, 1870.
37 & 38 Vict. c. 26; Canadian Stock Stamp Act, 1874.
40 & 41 Vict. c. 59; Colonial Stock Act, 1877.
Repeals Enactments described in Second Schedule.)

21. An Act to raise the sum of £1,500,000 by Exchequer Bonds, Exchequer Bills, or Treasury Bills, for the service of the year ending on the 31st March, 1881.

(Applies 29 & 30 Vict. c. 25; Exchequer Bills and Bonds Act, 1866.
,, 40 & 41 Vict. c. 2; Treasury Bills Act, 1877.
,, s. 15 of 29 & 30 Vict. c. 25, as to Forgery of Bonds.)

22. An Act to amend the Merchant Shipping Act, 1854, so far as regards certain Fees and Expenses and Sums receivable and payable by the Board of Trade.

(Amends 17 & 18 Vict. c. 104; 25 & 26 Vict. c. 63; 39 & 40 Vict. c. 80; } Merchant Shipping Acts, 1854, 1862, and 1876.
,, 14 & 15 Vict. c. 10; Seamen's Fund Winding-up Act, 1851.
,, 40 & 41 Vict. c. 16; Removal of Wrecks Act, 1877.)

*23. An Act to make further provision as to Byelaws respecting the attendance of Children at School under the Elementary Education Acts.

(Amends 33 & 34 Vict. c. 75; 39 & 40 Vict. c. 79; } Elementary Education Acts, 1870 and 1876.)

24. An Act to consolidate and amend the Law relating to the Manufacture and Sale of Spirits.

(Consolidates and amends the Law relating to the Manufacture and Sale of Spirits.
Applies Customs Acts to British Spirits in a Customs Warehouse.
Repeals (with certain savings and exceptions) the Enactments specified in the Fifth Schedule.)

25. An Act for further amending the Acts relating to the raising of Money by the Metropolitan Board of Works; and for other purposes relating thereto.

(Amends 38 & 39 Vict. c. 65; Metropolitan Board of Works (Loans) Act, 1875.
,, 42 & 43 Vict. c. 69; Metropolitan Board of Works (Money) Act, 1879.
Applies Metropolitan Board of Works (Loans) Acts, 1869 to 1871.
,, Metropolitan Board of Works (Money) Acts, 1875 to 1879.
Empowers Board to expend Moneys for purposes described in the Schedules.
Applies 24 & 25 Vict. c. 98; as to Forgery of Metropolitan Bills.)

26. An Act to extend to Scotland the Facilities for effecting Policies of Assurance for the benefit of Married Women and Children, now in force in England and Ireland.

(Extends to Scotland certain Facilities for effecting Policies of Assurance contained in 33 & 34 Vict. c. 93; Married Women's Property Act, 1870.)

27. An Act to amend the Law relating to the powers of Drainage Boards in Ireland to construct Works outside the limits of their Districts.

(Amends 26 & 27 Vict. c. 88; Drainage and Improvement of Lands (Ireland) Act, 1863.
Applies 29 & 30 Vict. c. 49; Drainage Maintenance Act, 1866.)

*28. An Act for taking the Census of Ireland.
(Applies 14 & 15 Vict. c. 93 and 21 & 22 Vict. c. 100; Petty Sessions (Ireland) Acts, 1851 and 1858.)

29. An Act to amend the Courts of Justice Building Act, 1865.
(Amends 28 & 29 Vict. c. 48; Courts of Justice Building Act, 1865.)

30. An Act to apply the sum of £10,818,274 out of the Consolidated Fund to the service of the year ending on the 31st March, 1881.

31. An Act to amend the Railways Construction Facilities Act, 1864.
(Amends 27 & 28 Vict. c. 121; Railways Construction Facilities Act, 1864.
Awards borrowing powers to Irish Railways scheduled in 43 & 44 Vict. c. 14; Relief of Distress (Ireland) Amendment Act, 1880.)

32. An Act to render valid certain Orders in Bastardy.
(Amends 35 & 36 Vict. c. 65; 36 & 37 Vict. c. 9; } Bastardy Laws Amendment Acts, 1872 and 1873.)

33. An Act relating to Post Office Money Orders.
(Amends 3 & 4 Vict. c. 96; Post Office Duties Act, 1840.
" 11 & 12 Vict. c. 88; Post Office Money Order Act, 1848.
Applies 24 & 25 Vict. c. 96; Larceny Act, 1861.
" 24 & 25 Vict. c. 98; Forgery Act, 1861.)

34. An Act to abolish Imprisonment for Debt, and to provide for the better Punishment of Fraudulent Debtors in Scotland; and for other purposes.
(Abolishes (with certain exceptions) Imprisonment for Debt in Scotland.
Applies 19 & 20 Vict. c. 79; Bankruptcy (Scotland) Act, 1856.
" 6 & 7 Will. 4, c. 56; 39 & 40 Vict. c. 70; } Cessio Acts, 1836 and 1875.)

*35. An Act to amend the Laws relating to the Protection of Wild Birds.
(Repeals 32 & 33 Vict. c. 17; Sea Birds Preservation Act, 1869.
" 35 & 36 Vict. c. 78; Wild Birds Protection Act, 1872.
" 39 & 40 Vict. c. 28; Wild Fowl Preservation Act, 1876.
Applies 11 & 12 Vict. c. 43, and 42 & 43 Vict. c. 49; Summary Jurisdiction Acts, 1848 and 1879.
" 27 & 28 Vict. c. 53; Summary Procedure (Scotland) Act, 1864.
" 14 & 15 Vict. c. 93; Petty Sessions (Ireland) Act, 1851.)

*36. An Act to amend the Savings Banks Acts.
(Amends 26 & 27 Vict. c. 25; Savings Bank Investment Act, 1863.
" 26 & 27 Vict. c. 87; Trustee Savings Bank Act, 1863.
" 40 & 41 Vict. c. 13; Customs, Inland Revenue, and Savings Bank Act, 1877.
Applies 32 & 33 Vict. c. 59; Savings Bank Investment Act, 1869.
" 34 & 35 Vict. c. 17; 38 & 39 Vict. c. 13; } Bank Holiday Acts, 1871 and 1875.)

*37. An Act for taking the Census of England.
(Applies Summary Jurisdiction Acts.)

*38. An Act for taking the Census of Scotland.
(Applies 27 & 28 Vict. c. 53; Summary Procedure (Scotland) Act, 1864.)

39. An Act to confer Jurisdiction in Lunacy upon the County Courts in Ireland in certain cases.
(Applies 34 & 35 Vict. c. 22; Lunacy Regulation (Ireland) Act, 1871.
" 40 & 41 Vict. c. 56; County Officers and Courts (Ireland) Act, 1877.)

40. An Act to apply a sum out of the Consolidated Fund to the service of the year ending 31st March, 1881, and to appropriate the Supplies granted in this Session of Parliament.
(Repeals part of 43 Vict. c. 13; Appropriation Act (Sess. 1), 1880.)

*41. An Act to amend the Burial Laws.
(Provides for burials in churchyards or graveyards without the rites of the Church of England.
Amends s. 17 of 37 & 38 Vict. c. 88; Births and Deaths Registration Act, 1874.)

*42. An Act to extend and regulate the Liability of Employers to make Compensation for Personal Injuries suffered by Workmen in their Service.

(Amends existing Law in respect of liability for personal injuries to Workmen.
Applies County Courts Acts, &c., as to Trial of Action.
" 38 & 39 Vict. c. 90; Employers and Workmen Act, 1875.)

43. An Act to provide for the safe carriage of Grain Cargoes by Merchant Shipping.

(Repeals s. 22 of 39 & 40 Vict. c. 80; Merchant Shipping Act, 1876.
Applies 17 & 18 Vict. c. 104; (Merchant Shipping Act, 1854) and Acts amending the same.
" s. 5 of 34 & 35 Vict. c. 110; } Merchant Shipping Acts, 1871 and 1873.
" s. 4 of 36 & 37 Vict. c. 85; }
" ss. 50 & 51 of 39 & 40 Vict. c. 36; Customs Consolidation Act, 1876.)

44. An Act to explain and amend Sections Seven, Thirteen, and Fourteen of the Relief of Distress (Ireland) Amendment Act, 1880.

(Amends 43 & 44 Vict. c. 14; Relief of Distress (Ireland) Amendment Act, 1880.
" 42 & 43 Vict. c. 77; Public Works Loans Act, 1879.)

*45. An Act to amend the Criminal Law as to Indecent Assaults on Young Persons.

*46. An Act to amend the Universities and College Estates Act, 1858.

(Amends 21 & 22 Vict. c. 44; } Universities and College Estates Acts, 1858 and
" 23 & 24 Vict. c. 59; } 1860.)

*47. An Act for the better protection of Occupiers of Land against Injury to their Crops from Ground Game.

(Enables Occupiers of Land to protect their Crops from injury and loss by Ground Game.
Saves provisions of 33 and 34 Vict. c. 57; Gun Licence Act, 1870.)

48. An Act to continue various expiring Laws.

(Continues (as in Schedule) the following Acts, and Acts amending the same, viz.:—
5 & 6 Will. 4, c. 27; Linen, &c., Manufactures (Ireland).
3 & 4 Vict. c. 89; Poor Rates (Stock in Trade Exemption).
4 & 5 Vict. c. 35; Copyhold, &c., Commissions.
4 & 5 Vict. c. 59; Application of Highway Rates to Turnpike Roads.
10 & 11 Vict. c. 32; Landed Property Improvement (Ireland).
10 & 11 Vict. c. 98; Ecclesiastical Jurisdiction.
11 & 12 Vict. c. 32; County Cess (Ireland).
14 & 15 Vict. c. 104; Episcopal, &c., Estates.
23 & 24 Vict. c. 19; Dwellings for Labouring Classes (Ireland).
24 & 25 Vict. c. 109; Salmon Fishery (England).
25 & 26 Vict. c. 97; Salmon Fisheries (Scotland).
26 & 27 Vict. c. 105; Promissory Notes.
27 & 28 Vict. c. 20; Promissory Notes, &c. (Ireland).
28 & 29 Vict. c. 46; Militia Ballots Suspension.
28 & 29 Vict. c. 83; Locomotives on Roads.
29 & 30 Vict. c. 52; Prosecution Expenses.
32 & 33 Vict. c. 42; Irish Church.
34 & 35 Vict. c. 87; Sunday Observance Prosecutions.
35 & 36 Vict. c. 33; Parliamentary and Municipal Elections (Ballot).
38 & 39 Vict. c. 48; Police Expenses.
39 & 40 Vict. c. 21; Juries (Ireland).)

ABSTRACTS OF IMPORTANT ACTS

PASSED IN THE FIRST SESSION OF THE TWENTY-SECOND PARLIAMENT OF GREAT BRITAIN AND IRELAND.

1. CHURCH AND EDUCATION.

BURIAL LAWS AMENDMENT.

[43 and 44 Victoriæ, cap. 41.—7th September, 1880.]

An Act to amend the Burial Laws.

The preamble recites the expediency of amending the law of burial in England and the Channel Islands. Section 1 empowers any relative, friend, or legal representative having the charge of, or being responsible for, the burial of a deceased person, to give forty-eight hours' notice in writing, endorsed on the outside "Notice of Burial," to the rector, vicar, or other incumbent, or, in his absence, to the officiating minister of any ecclesiastical district or place, or to any person appointed by him to receive such notice, of the intention to bury the deceased person within the churchyard or graveyard of the parish, district, or place, without the performance in the manner prescribed by law of the service for the burial of the dead according to the rites of the Church of England. After receiving such notice, no rector, vicar, incumbent, or officiating minister is to be liable to any censure or penalty, ecclesiastical or civil, for permitting the burial. The notice is to be in writing, plainly signed with the name, and stating the address of the person giving it, and is to be in the following form, or to the same effect:—

Notice of Burial.

I, , of , being the relative [*or* friend, or legal representative, as the case may be, describing the relation if a relative], having the charge of, or being responsible for, the the burial of A.B., of , who died at , in the parish of , on the day of , do hereby give you notice that it is intended by me that the body of the said A.B. shall be buried within the [here describe the churchyard or graveyard in which the body is to be buried] on the day of , at the hour of , without the performance in the manner prescribed by law of the service for the burial of the dead according to the rites of the Church of England, and I give this notice pursuant to "The Burial Laws Amendment Act, 1880."

To the rector [*or*, as the case may be] of .

The word graveyard in this section is to include any burial-ground or cemetery vested in any burial board or provided under any Act relating to the burial of the dead, in which the parishioners or inhabitants of any parish or ecclesiastical district have rights of burial; and where there is a chaplain of such ground or cemetery appointed to perform the burial service of the Church of England therein, a notice under this Act is to be addressed to him, and is to

be given or left at the office of the clerk of the burial board. The section also makes it lawful for the proprietors or directors of any proprietary cemetery or burial-ground to make such byelaws or regulations as may be necessary for enabling any burial to take place therein in accordance with the provisions of this Act, any enactment to the contrary notwithstanding. Section 2 provides for cases of paupers whom the guardians of a parish or union are required or authorised to bury. Notice in such cases is to be given to the rector, vicar, or incumbent, as in the previous section, and also to the master of any workhouse where the person may have died, or else to the guardians, by the husband, wife, or next of kin of the deceased, who, for the purposes of this Act, shall be deemed to be the person having the charge of the burial; and it shall then be the duty of the guardians to permit the body to be buried in the manner provided by this Act. Section 3 enacts that the notice to the incumbent is to state the day and hour proposed for the burial. If the time named is inconvenient on account of some other service having been previously to the receipt of such notice appointed to take place in the churchyard or graveyard, or the church or chapel connected therewith, or on account of any byelaws or regulations lawfully in force in any graveyard limiting the times at which burials may take place in such graveyard, the person who received the notice is, unless some other time is mutually arranged within twenty-four hours from the time of giving or leaving such notice, to signify in writing to the person who gave the notice at what hour of the day named in the notice such burial shall take place, or, in case of burial in a churchyard, if such day shall be a Sunday, Good Friday, or Christmas Day, of the next following; and it is to be lawful for the burial to take place, and it is to take place, at the hour so appointed or mutually arranged, and in other respects in accordance with the notice. The notice postponing the burial is to be in writing and is to be delivered to or left at the address or usual place of abode of the person from whom the notice of the time originally proposed for the burial was received, or at the house where the deceased person is lying. As to the hours at which burials under the Act may take place, the section provides that, unless it shall be otherwise mutually arranged, it shall be between 10 A.M. and 6 P.M. from 1st April to 1st October, and between 10 A.M. and 3 P.M. between 1st October and 1st April, but no such burial is to take place in any churchyard on Sunday, Good Friday, or Christmas Day, if on such day being proposed, it is objected to in writing for a reason assigned by the person receiving the notice of the intended burial. Section 4 enacts that when no intimation of change of hour is given as provided in section 3, the burial is to take place in accordance with and at the time specified in the notice. Section 5 provides that all existing regulations as to the position and making of graves, and as to fees, are to remain in force just as if the burials under this Act had taken place with the service of the Church of England. Section 6 gives all persons free access to any churchyard or graveyard at any burial taking place under this Act, and leaves it to the option of the person charged with or responsible for the burial, whether it shall take place without any religious service, or with such Christian and orderly religious service at the grave as such person shall think fit, and in the latter case any person or persons invited or authorised by

the person having the charge of or being responsible for the burial may conduct such service or take part in any religious act thereat. The words "Christian service" in this section are to include every religious service used by any Church denomination or person professing to be Christian. Section 7 requires that all burials under this Act are to be conducted in a decent and orderly manner, and any person is to be guilty of a misdemeanor who is guilty of any riotous, violent, or indecent behaviour at a burial under this Act, or wilfully obstructs such burial or any service thereat, or who in any such churchyard or graveyard, delivers any address, not being part of or incidental to a religious service permitted by this Act, and not otherwise permitted by any lawful authority, or who shall, under colour of any religious service or otherwise, in any such churchyard or graveyard, wilfully endeavour to bring into contempt or obloquy the Christian religion, or the belief or worship of any church or denomination of Christians, or the members or any minister of any such church or denomination, or any other person. Section 8 provides for the exercise of all powers and authorities now existing by law for the preservation of order, and for the prevention and punishment of disorderly behaviour in any churchyard or graveyard, at burials under this Act as at burials according to the rites of the Church of England. By section 9 it is explained that this Act gives no right of burial where the right did not previously exist. Section 10 refers to the registration of burials under the Act. The person having charge of or responsible for the burial is, on the day it takes place or on the next, to transmit to the minister in charge of the parish where the churchyard or graveyard is, or to the registrar of the burials in any cemetery where the interment took place, a notice in the following form :—

I, , of , the person having the charge of [*or* being responsible for] the burial of the deceased, do hereby certify that on the day of , A.B., of , aged , was buried in the churchyard, [*or* graveyard] of the parish [*or* district] of .

To the rector [*or*, as the case may be] of .

The minister or person receiving this notice is to enter the burial in the register of burials of the parish, district, or cemetery, and the entry, instead of stating by whom the ceremony was performed, is to state by whom the burial was certified under the Act. Persons wilfully making a false statement, or the persons whose duty it is to register the burial, who shall refuse or neglect duly to enter such burial in their register, are to be guilty of a misdemeanour. Under section 11 every order of a coroner or certificate of a registrar, given under section 17 of the "Births and Deaths Registration Act, 1874," is, in the case of burials under that Act, to be delivered to the person having charge of or being responsible for the burial, instead of to the person who performed any funeral or religious service. Any person entrusted with such order or certificate by the coroner or registrar who fails to deliver it is liable to a penalty not exceeding 40*s.*, and any person responsible for a burial under this Act to whom no order or certificate under the Act of 1874 has been delivered is, within seven days after the burial, to notify the fact in writing to the registrar, and

if he fails to do so is to be liable to a penalty not exceeding 10*l.* Section 12 gives ministers in Holy Orders of the Church of England liberty, without censure or penalty, to use the burial service of the Church of England in any unconsecrated burial-ground or cemetery, or any building thereon, in any case in which he might lawfully have used the service, if the ground or building had been consecrated; and it also gives the person having charge of or being responsible for any burial the right to have it performed according to the rites of the Church of England, by any minister of the Church willing to perform it, in any unconsecrated ground vested in any burial board or provided under any Act relating to the burial of the dead. Section 13 relieves any minister in Holy Orders of the Church of England from any ecclesiastical or other censure or penalty for using, at a burial where the rites of the Church of England may not be used, or in any other case, at the request of the person having charge of or responsible for the burial, such service consisting of prayers taken from the Book of Common Prayer and portions of Holy Scripture as may be prescribed or approved of by the ordinary. Section 14 declares that, save as in this Act is expressly provided, nothing contained in the Act is to authorise or make any minister of the Church of England, unless he has become a declared member of any other church or denomination, or has executed a deed of relinquishment under the "Clerical Disabilities Act, 1870," to do any act which he would not by law have been authorised or enabled to do if this Act had not passed, or to exempt him from any censure or penalty in respect thereof. Section 15 extends the Act to the Channel Islands, but exempts Scotland and Ireland from its operations, and section 16 gives as its short title, "The Burial Laws Amendment Act, 1880."

ELEMENTARY EDUCATION.

[43 and 44 Victoriæ, cap. 23.—26th August, 1880.]

An Act to make further provision as to Byelaws respecting the attendance of children at School under the Elementary Education Acts.

The preamble recites the expediency of further provisions for the making of byelaws as to school attendance, as under the existing law a school attendance committee for a union is unable to make byelaws respecting any parish in their union, except on the requisition of the parish. Section 1 gives the short title of the statute as the "Elementary Education Act, 1880," and provides that it shall be construed as one with the Act of 1876, the two being cited together as "The Elementary Education Acts, 1876 and 1880." Section 2 declares it to be the duty of the local authority (within the meaning of the Act of 1876), of every school district forthwith to make byelaws as to the attendance of children at school, wherever such byelaws under section 74 of the Act of 1870, are not in force at the passing of the Act of 1880, and wherever such byelaws are not made after 31st December, 1880, the Education Department may either proceed under section 27 of the Act of 1876 (which relates to a local authority who fail to fulfil their duty under that Act), or make byelaws respecting the attendance of children at school in that district, and byelaws so made

are to have effect, and be enforced, and be subject to revocation and alteration, as if they had been made by the local authority for that district, and sanctioned by the Department in pursuance of section 74 of the Act of 1870. It is, however, provided, that in a school district in which byelaws are not in force, no byelaw made in pursuance of this section is to prevent a child who, at the date of the byelaw taking effect, is employed in accordance with the Act of 1876 from continuing to be so employed. Section 3 empowers the school attendance committee for a union comprising a parish in pursuance of Section 21 of the Act of 1876, without the requisition of the parish to make byelaws under section 74 of the Act of 1870, respecting school attendance. Section 4 makes it a contravention of the Act of 1876, and renders the person offending liable to a penalty to employ a child of 10 or under 13 years of age, resident in a school district, before that child has obtained a certificate of having reached the standard of education fixed by a byelaw in force in the district for the total or partial exemption of children of the like age from the obligation to attend school. Proceedings may be taken for punishing such contravention of the byelaws, notwithstanding that the contravention constitutes habitual neglect to provide efficient elementary education for a child within the meaning of section 11 of the Act of 1876; but it is provided that nothing in this section is to prevent an employer from employing any child who is employed by him, or by any other person at the time of the passing of this Act, and who attends school in accordance with the provisions of "The Factory and Workshop Act, 1878." Section 5 amends section 40 of the Act of 1876, by providing that a child shall not, as a condition of the continuance of relief out of the workhouse being continued to him or his parent, be required to attend school further or otherwise than he is required to attend by a byelaw in force under section 74 of the Act of 1870, as amended by the Act of 1876, and this Act, in the school district in which he is resident, provided that this section is not to apply where there is no such byelaw in force in the school district. Section 6 repeals certain portions of the Act of 1876, section 79, as set forth in the schedule.

TENURE OF UNIVERSITY AND COLLEGE EMOLUMENTS.

[43 and 44 Victoriæ, cap. 11.—2nd August, 1880.]

An Act to authorise the Extension and further Limitation of the Tenures of certain University and College Emoluments limited or to be limited by Orders of the Oxford and Cambridge Commissioners.

The preamble recites the power given to the Commissioners under section 33 of "The Universities of Oxford and Cambridge Act, 1877," to authorise and direct the universities respectively, or any college or hall, to suspend the election or appointment to, or to limit the tenure of, any emolument therein mentioned for a given time; and records the extension of the power thus given to the end of 1881; and then proceeds to recite that, as the Commissioners before this extension of their powers, limited the tenure of certain emoluments to the 31st December, 1880, but intended to prolong the tenure by statutes, it is expedient that the said Commissioners should be enabled to extend the

tenure of emoluments which are now held on tenures so limited by them. Section 1 gives the short title of the statute as "The Universities of Oxford and Cambridge (Limited Tenures) Act, 1880." Section 2 defines the terms used in the Act. Section 3 gives the Commissioners power in cases where they have by writing under their seal authorised or directed the university, or any college or hall, to limit the tenure of any emolument for a time therein mentioned, and such emolument is at the time of the passing of this Act held on the tenure so limited, to direct by writing under their seal that the tenure of the said emolument shall be extended for a further time within the continuance of their powers as ascertained at the time of the sealing of such last-mentioned writing; and in every such case the holder of the emolument shall be entitled to continue to hold it during the extended period on the same terms and in the same manner as if such extended period had been the period of tenure fixed by the original limitation. By section 4 the Commissioners may in the same way direct that the tenure of any emolument which may have been limited by them under the said recited Act or this Act, shall be further extended, or that any new election or appointment to any university or college emolument after the passing of this Act shall be made and take effect, subject in each case to the condition that the person whose tenure is so limited, or who shall be so elected or appointed, shall, from and after the approval by Her Majesty in Council of any new statutes which may be made by the Commissioners in relation to such emolument, hold the same subject and according to the provisions of such new statutes (including any provision relating particularly to the person whose tenure is so limited, or who shall be so elected or appointed), and such emolument shall be tenable accordingly.

UNIVERSITIES AND COLLEGE ESTATES.

[43 and 44 Victoriæ, cap. 46.—7th September, 1880.]

An Act to amend "The Universities and College Estates Act, 1858."

By section 1 the short title of the statute is "The Universities and College Estates Amendment Act, 1880." By section 2 the purchase money of land sold by a university or college under "The Universities and College Estates Act, 1858," or any other Act amending the same may, with the assent of the Copyhold Commissioners, be from time to time applied to the repayment of money borrowed under those Acts, or to the purposes to which money so borrowed is applicable under those Acts. Where purchase money is so applied, the same provision for its replacement is to be made as in the case of money borrowed under the Act of 1858, and where the purchase money is applied to repayment of a loan it is to be replaced within, or at the expiration of the period limited for the repayment of the loan and upon the terms of the order in which the consent of the Copyhold Commissioners to the loan was evidenced, and the consent of the Copyhold Commissioners is to be given to the transaction. By section 3 any moneys applicable under the Universities and College Estates Acts to or for any of the purposes mentioned in section 27 of the Act of 1858, may also be applied, by and under the authority of the Copyhold Commissioners, in or towards the restoration or rebuilding of the chancel of any

church which the university or college to which such moneys belong may be by law liable to restore or rebuild. By section 4 the provisions of this Act are also to apply to moneys belonging solely to any university or college which may have arisen from the sale, enfranchisement, or exchange of any such lands under any other Act of Parliament, or otherwise howsoever, and which may be now or hereafter standing to the account or credit of any cause or matter in the Supreme Court of Judicature, or in Her Majesty's High Court of Justice, or any division thereof, or in the names of trustees nominated in pursuance of any Act of Parliament. By section 5 it is enacted, that where a benefice is by statute or otherwise annexed to the headship of a college as part of the endowment of the headship, and it appears that the endowments of the benefice are sufficient to bear such a charge as is hereinafter mentioned, the college may by deed charge the whole or any part of the land or other endowments of the benefice with the payment to the head of the college for the time being of such an annual sum, not exceeding one-half of such endowments, as is in the opinion of the Ecclesiastical Commissioners for England, and the bishop of the diocese, proper and adequate, regard being had to the value of the benefice, the requirements of the college, and the population and other circumstances of the parish, and thereupon the advowson and right of presentation of and in such benefice shall be vested in the college, freed and discharged from any trust in favour of the head for the time being. The schedule contains the form of order authorising the application of purchase money in repayment of money borrowed, and the form of order authorising the application of purchase money for improvement purposes [*or* for loss of fines through non-renewal of leases].

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2. MERCANTILE MARINE.

WAGES AND RATING OF MERCHANT SEAMEN.

[43 & 44 Victoriæ, cap. 16.—2nd August, 1880.]

An Act to amend the Law relating to the Payment of Wages and Rating of Merchant Seamen.

Section 1 gives the short title as "The Merchant Seamen Payment of Wages and Rating Act, 1880." Section 2 makes it illegal, on and after August 1, 1881, to give seamen conditional advance notes for their wages, and all notes promising payment made before the wages have been earned are to be void, and no money paid on such documents is to be deducted from a seaman's wages, nor is any person to have a right of action, suit, or set off against the seaman or his assignee for money so paid. This is not to affect allotment notes under "The Merchant Shipping Act, 1854." By section 3 every agreement with a seaman required by the Act just named, to be made in the form sanctioned by the Board of Trade, is, if the seaman so require, to stipulate for the allotment of any part, not exceeding one-half, of his wages in favour of one or more of the persons named in section 169 of the Act of 1854, but the allotment may also be made in favour of a savings bank (either the Post Office Savings Bank, a Trustee Savings

Bank, or Seamen's Savings Bank). The sum received in pursuance of such allotment by a savings bank is to be paid out only on an application made through a superintendent of a mercantile marine office or the Board of Trade, by the seaman himself, or, in case of death, by some person to whom the same might be paid under section 199 of "The Merchant Shipping Act, 1854." A payment under an allotment note is to begin at the expiration of one month, or, if the allotment is in favour of a savings bank, of three months, from the date of the agreement, or at such later date as may be fixed by the agreement, and is to be paid at the expiration of every subsequent month, or of such other periods as may be fixed by the agreement, and is to be paid only in respect of wages earned before the date of payment. Section 4 prescribes rules as to payment of wages in the case of foreign-going ships, under which the owner or master of the ship is required to pay to each seaman on account, at the time when he lawfully leaves the ship at the end of his engagement, 2*l.*, or one-fourth of the balance due to him, whichever is least, and to pay him the remainder of his wages within two clear days (exclusive of any Sunday, Fast Day in Scotland, or Bank Holiday) after he so leaves the ship. The section makes further provisions on this head, and all questions between the master or owner and a seaman or apprentice may be settled by the superintendent of a mercantile marine office, if the amount be under 5*l.*, but if the superintendent is of opinion that the question ought to be left to a court of law, he may refuse to decide it. Section 5 imposes a penalty, not exceeding 20*l.* or imprisonment for not more than six months, on any person who without leave goes on board a ship before the seamen leave at the end of the voyage, or who, being on board the ship, refuses to leave after being warned. Section 6 applies the provisions in section 5 to foreign ships in certain cases. Section 7 enacts that a seaman is not to be entitled to the rating of A.B. (able-bodied seaman) unless he has served at sea for four years before the mast, but the employment of fishermen in registered decked fishing vessels is only to count as sea service up to a period of three years of such employment; and the rating of A.B. is only to be granted after at least one year's sea service in a trading vessel in addition to three or more years sea service on board of registered decked fishing vessels. Such service may be proved by certificates of discharge, by a certificate of service from the Registrar-General of Shipping and Seamen (which shall be granted on payment of a fee not exceeding 6*d.*), and in which shall be specified whether the service was rendered in whole or in part in steam ship or in sailing ship, or by other satisfactory proof. Nothing in this section is to affect a seaman who has been rated and has served as A.B. before the passing of this Act. Section 8 relates to the power of a court to rescind a contract between the owner or master and seaman or apprentice. Section 9 makes it lawful for the sanitary authority of any seaport town to pass byelaws for the licensing of seamen's lodging-houses, for the periodical inspection of the same, for the granting to the persons to whom such licences are given the authority to designate their houses as seamen's licensed lodging-houses, and for prescribing the penalties for the breach of the provisions of the byelaws: Provided always, that no such byelaws are to take effect till they have received the approval of the Board of Trade. Section 10 relates to the desertion of seamen

or apprentices, and their absence without leave. Section 11 extends to seamen section 13 of "The Employers and Workmen's Act, 1875" (17 and 18 Vict., cap. 104).

OWNERS OF SHIPS.

[43 and 44 Victoriæ, cap. 18.—2nd August, 1880.]

An Act to amend "The Merchant Shipping Act, 1854."

By section 1 this Act may be cited as "The Merchant Shipping Act (1854) Amendment Act, 1880." Section 2 repeals sub-section 2 of section 37 of the Act of 1854, and in place thereof it is enacted that the following words shall be accepted, viz. :—Subject to the provisions with respect to joint owners or owners by transmission hereinafter contained, not more than sixty-four individuals shall be entitled to be registered at the same time as owners of any one ship; but this rule shall not affect the beneficial title of any number of persons of any company represented by or claiming under or through any registered owner or joint owner.

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3. FINANCE AND TAXATION.

INLAND REVENUE.

[43 and 44 Victoriæ, cap. 20.—12th August, 1880.]

An Act to repeal the duties on Malt, to grant and alter certain duties of Inland Revenue, and to amend the Laws in relation to certain other duties.

Section 1 gives the short title as "The Inland Revenue Act, 1880." Section 2 interprets the terms used in the Act. Part I relates to the repeal of duties on malt, and contains provisions as to malt in stock. By section 3, on 1st October, 1880, the following duties of Excise cease to be charged and payable (that is to say) ;—The duties on malt; the duty on sugar used by any brewer of beer for sale in the brewing or making of beer, or in the preparation therefrom of any liquor or substance to be used as colouring in the brewing or making of beer. The duties on licences to be taken out by a maltster or maker of malt, a roaster of malt, a dealer in roasted malt, and a brewer of beer for sale, and the drawbacks of Excise now payable on malt and beer shall cease to be allowed. By section 4, on and after the 1st October, 1880, the duties of Customs on the following articles, viz., malt, vinegar, and pickles preserved in vinegar, are to cease and determine, and the prohibition contained in section 42 of "The Customs Consolidation Act, 1876," so far as respects extracts, essences, or concentrations of malt, is to cease and be removed. By section 5, there is to be paid or allowed to every malt trader for all dry unground malt produced to, and taken account of by, the proper officer, and the quantity thereof ascertained between the 27th and 30th September, 1880, both days inclusive, as his stock and in his custody and possession, and for which duty shall have been paid or charged, the several allowances and sums of money following (that is to say) :—For every bushel of such malt made in England from barley or any other corn, 2*s.* 7*d.*, with 5 per cent. thereon; for every

bushel of such malt made in Scotland or Ireland from barley or any other corn, except bere or bigg, 2*s.* 7*d.*, with 5 per cent. thereon; and for every bushel of such malt made in Scotland or Ireland from bere or bigg only, without any mixture of barley or any other corn therewith, 2*s.*, with 5 per cent. thereon; in each case subject to certain conditions. Section 6 sets forth the rules to be observed by a malt trader on claiming allowance. Section 7 prescribes the mode of payment of the allowance. Section 8 enables an officer to enter the premises of a malt trader between 27th and 30th September, 1880. By section 9, malt traders, who have sold malt as duty-paid, are to deduct or repay the allowance. The second part of the Act relates to brewers and Excise duty on beer; and section 10 prescribes the following duties of Excise on licences to be taken out annually by brewers in the United Kingdom:—On a licence to be taken out by a brewer for sale, 1*l.*; on a licence to be taken out by any other brewer, 6*s.* Every such licence is to be in such form as the Commissioners shall direct, and shall, whenever issued, be granted only on payment in full of the duties respectively, and shall expire on the 30th September in each year. If any person brews beer without having in force a proper licence under this Act, he will incur a fine of 100*l.*, and all worts, beer, and vessels, utensils, and materials for brewing in his possession shall be forfeited. The following sections (11 to 18) contain further provisions on this head. The next group of sections deals with brewers for sale; a description which includes, according to section 19, any person who brews beer for the use of any other person at any place other than the premises of the person for whose use the beer shall be brewed, and any person licensed to deal in or retail beer, who brews beer. Sections 20 to 31 supply the rules with which brewers for sale have to comply, as to keeping books for the inspection of officers (section 20), marking vessels and rooms, and positions of vessels (section 21); entry of premises on forms (section 22); operations in course of brewing (section 23), &c. Sections 32 to 35 refer to brewers other than brewers for sale; and section 34 enacts that a brewer, other than a brewer for sale, shall only brew beer for his own domestic use, or for consumption by farm-labourers employed by him in the actual course of their labour or employment. Such brewer shall only brew on premises occupied by him, or, in case he occupies a house of an annual value not exceeding 10*l.*, on premises gratuitously lent to him by a brewer other than a brewer for sale. If the brewer contravenes either of the foregoing provisions of this section, or sells or offers for sale any beer brewed by him, he incurs the penalty of 10*l.* Sections 36 to 39 refer to the drawback on beer exported. Part III (sections 40 to 49) gives the table of licences for the sale of liquors by retail. Part IV provides for the additional duties of income-tax chargeable from 6th April, 1880; and Part V relates to stamp duties.

SAVINGS BANKS.

[43 and 44 Victoriæ, cap. 36.—7th September, 1880.]

An Act to amend the Savings Bank Act.

Section 1, after describing existing arrangements under "The Savings Bank Investment Act, 1863" (26 and 27 Vict., cap. 25), and under

"The Customs Inland Revenue and Savings Banks Act, 1877" (40 and 41 Vict., cap. 13), enacts as follows:—(1.) In every balance sheet of the assets and liabilities of the National Debt Commissioners in respect of trustee savings banks prepared after the passing of this Act in pursuance of "The Savings Bank Investment Act, 1863," the assets besides being valued in manner directed by the said Act shall also be valued as follows:—The Government stock shall be valued at such sum as would, if invested to yield 3½ per cent. per ann., produce the same income as the said stock; the terminable annuities shall be valued at the total amount of the future payments after deducting discount at the rate of 3½ per cent. per ann.; and the residue of the assets shall be valued at par. The sum by which the assets, valued as directed by this Act, in the balance sheet prepared for the year ending the 20th November, 1880, are insufficient to meet the liabilities of the National Debt Commissioners in respect of trustee savings banks on that day is in this Act referred to as the capital deficiency. There shall be added to the said capital deficiency the sum (if any) by which during the year ending on the last-mentioned day the interest accrued from the assets of the National Debt Commissioners in respect of trustee savings banks was insufficient to meet the interest paid and credited to the trustees of the trustee savings banks. For the purpose of paying to the National Debt Commissioners the total deficiency so ascertained, the Treasury shall, by warrant under their hands, create and direct the Governor and Company of the Bank of England to inscribe in their books for the National Debt Commissioners on the trustee savings banks account a terminable annuity for such number of years, not exceeding twenty-eight, computed from the 1st April, 1881, as the Treasury think expedient, of such an amount as will pay off the said total deficiency if the interest is calculated at the rate of 3½ per cent. per ann. The said annuity is to be charged upon the Consolidated Fund, and added to and paid out of the permanent annual charge for the National Debt, and the permanent annual charge for the National Debt is, during the period for which the said annuity is created, to be increased by the amount of the annuity. By section 2 after 20th November, 1880, the rate of interest allowed by the National Debt Commissioners in respect of money paid into the Banks of England or Ireland is to be 3 per cent. per ann., and "The Trustee Savings Banks Act, 1860," is to be construed as if 3*l.* were throughout section 21 substituted for 3*l.* 5*s.* From and after the same day the interest payable to depositors by the trustees of any trustee savings bank, is not to exceed 2*l.* 15*s.* per cent. per ann. By section 3 any deposit in a trustee or post office savings bank, or any part of a deposit, may, on the request of the depositor, be invested by the savings bank authority in any Government stock; provided that (*a*) the sum invested shall not be less than 10*l.*, or the amount of the current price of 10*l.* stock with the addition of the commission, whichever sum is least: (*b*) the amount of stock credited to any one account in any savings bank year (whether any stock has been previously sold or not) shall not exceed 100*l.* stock: (*c*) the whole amount of stock credited to any one account shall not exceed 300*l.* stock. Subject to the regulations under this Act, the depositor may request the savings bank authority to sell the stock standing to his account, or any part of such stock, not less than 10*l.* stock, or than stock of the value of 10*l.* over and above the com-

mission, whichever is least. Upon request from a depositor for an investment in stock under this section, the savings bank authority is, in the prescribed manner, and on the prescribed day, not later than seven days after the receipt of the request, to charge the depositor with the current price on that day of the stock and the commission, and credit the depositor with the equivalent amount of stock out of stock standing to the savings bank investment account of the National Debt Commissioners, and is to send to the depositor a certificate thereof in the prescribed form. The section also prescribes in detail the arrangements for giving effect to the above provisions. Section 4 contains regulations as to the investment of moneys by the Treasury under this Act in Government stock. The date fixed by section 7 for this Act to come into operation is 1st November, 1880.

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4. LAW AND JUSTICE.

REPRESENTATION OF THE PEOPLE (SCOTLAND).

[43 and 44 Victoriæ, cap. 6.—19th July, 1880.]

An Act to amend "The Representation of the People (Scotland) Act, 1868."

The preamble recites that questions have arisen upon the occupation of houses in counties required by section 6 of "The Representation of the People (Scotland) Act, 1868," and section 2 enacts that, from and after the passing of this Act, every man shall be entitled to be registered, and to vote under the provisions of the said section, notwithstanding that during a part of the qualifying period, not exceeding four months in the whole, he shall, by letting or otherwise, have permitted the qualifying premises to be occupied as a furnished house by some other person.

By section 1 this Act is to be cited for all purposes as "The House Occupiers in Counties Disqualification Removal (Scotland) Act, 1880."

LETTERS PATENT UNDER THE GREAT SEAL.

[43 and 44 Victoriæ, cap. 10.—2nd August, 1880.]

An Act to amend the Law respecting the manner of passing Grants under the Great Seal, and respecting Officers connected therewith.

By section 1, the short title of this Act is "The Great Seal Act, 1880." Section 2 fixes the date on which the Act shall come into operation as 1st November, 1880. On and after this date, every warrant for the passing of Letters Patent under the Great Seal of the United Kingdom, which is required, by "The Great Seal Act, 1851," to be prepared by Her Majesty's Attorney and Solicitor-General for the time being, or one of them, is by section 3 to be prepared by the Clerk of the Crown in Chancery, and not by the Attorney or Solicitor-General, and all records, documents, and papers in the possession or under the control of Her Majesty's Attorney and Solicitor-General, or either of them, or their officers, which relate to preparation of

warrants for the passing of Letters Patent under the Great Seal are on 1st November, 1880, to be transferred to the Clerk of the Crown in Chancery. Section 11 recites that, by "The Supreme Court of Judicature Act, 1875," and "The Appellate Jurisdiction Act, 1876," ordinary judges of Her Majesty's Court of Appeal are to be appointed by Her Majesty by Letters Patent, but no provision is made respecting the mode of passing such Letters Patent, and enacts that the Letters Patent for appointing an ordinary judge of Her Majesty's Court of Appeal are to be passed in the same manner in which Letters Patent for the appointment of judges of Her Majesty's High Court of Justice are passed under the Great Seal. Section 5 provides that, in the case of Letters Patent for inventions granted before or after the passing of this Act, all instruments required to be filed in the office of the Great Seal Patent Office shall be deemed so filed, if filed in the office of the Commissioners of Patents for Inventions.

DEFINITION OF TIME IN ACTS OF PARLIAMENT AND LEGAL INSTRUMENTS.

[43 and 44 Victoriæ, cap. 9.—2nd August, 1880.]

An Act to remove doubts as to the meaning of Expressions relative to Time occurring in Acts of Parliament, deeds, and other legal instruments.

The preamble declares the expediency of removing certain doubts as to whether expressions of time occurring in Acts of Parliament, deeds, and other legal instruments relate in England and Scotland to Greenwich time, and in Ireland to Dublin time, or to the mean astronomical time in each locality, and section 1 enacts that, whenever any expression of time occurs in any Act of Parliament, deed, or other legal instrument, the time referred shall, unless it is otherwise specifically stated, be held in the case of Great Britain to be Greenwich mean time, and in the case of Ireland, Dublin mean time. By section 2, the short title of this Act is "The Statutes (Definition of Time) Act, 1880."

EMPLOYERS' LIABILITY TO COMPENSATE WORKMEN FOR INJURIES.

[43 & 44 Victoriæ, cap. 42.—7th September, 1880.]

An Act to extend and regulate the Liability of Employers to make Compensation for Personal Injuries suffered by Workmen in their Service.

By section 1, where, after the commencement of this Act, personal injury is caused to a workman under the conditions named below, the workman, or in case the injury results in death, the legal personal representatives of the workman, and any person entitled in case of death, shall have the same right of compensation and remedies against the employer as if the workman had not been a workman of nor in the service of the employer, nor engaged in his work. The cases where compensation may be claimed are where the workman is injured:—(1.) By reason of any defect in the condition of the ways, works, machinery, or plant connected with or used in the business of the employer;

(2.) By reason of the negligence of any person in the service of the employer who has any superintendence entrusted to him whilst in the exercise of such superintendence; (3.) By reason of the negligence of any person in the service of the employer to whose orders or directions the workman at the time of the injury was bound to conform, and did conform, where such injury resulted from his having so conformed; (4.) By reason of the act or omission of any person in the service of the employer done or made in obedience to the rules or bye-laws of the employer, or in obedience to particular instructions given by any person delegated with the authority of the employer in that behalf; or (5.) By reason of the negligence of any person in the service of the employer who has charge or control of any signal, points, locomotive engine, or train upon a railway. Section 2 makes certain exceptions, in which the workman is not to be entitled to compensation. He is not to be entitled (*a*) unless the defect causing the accident arose from, or had not been discovered owing to, the negligence of the employer or some person in his service entrusted with the duty of seeing that the ways, works, machinery, or plant were in proper condition; (*b*) unless where the injury is caused by some person's act, in obedience to the employer's rules, it resulted from some impropriety or defect in the rules or instructions, and no rule accepted by the Government authorities is for this purpose to be regarded as improper or defective; (*c*) where the workman knew of the defect or negligence which caused his injury and failed to give information, except in cases where he knew that the employer or superior was already aware of it. By section 3 the amount of compensation recoverable under this Act is not to exceed such sum as would be equivalent to the estimated earnings, during the three years preceding the injury, of a person in the same grade as the person injured employed during those years in the like employment and the same district as the injured person. By section 4 no action for the recovery of compensation under this Act is to be maintainable unless notice of the injury is given within six weeks of its being sustained and the action is commenced within six months of its occurrence, or in case of death within twelve months from the time of death, provided that, in case of death, the want of notice is to be no bar to the maintenance of the action, if the judge holds that there was reasonable excuse for such want of notice. By section 5 there is to be deducted from any compensation awarded to any workman, or representatives of a workman, or persons claiming by, under, or through a workman in respect of any cause of action arising under this Act, any penalty or part of a penalty which may have been paid in pursuance of any other Act of Parliament to such workman, representatives, or persons in respect of the same cause of action; and where an action has been brought under this Act by any workman, or the representatives of any workman, or any persons claiming by, under, or through such workman, for compensation in respect of any cause of action arising under this Act, and payment has not previously been made of any penalty or part of a penalty under any other Act of Parliament in respect of the same cause of action, such workman, representatives, or person shall not be entitled thereafter to receive any penalty or part of a penalty under any other Act of Parliament in respect of the same cause of action. Section 6 pro-

vides that every action for recovery of compensation under this Act shall be brought in a county court, but may, upon the application of either plaintiff or defendant, be removed into a superior court in like manner and upon the same conditions as an action commenced in a county court may by law be removed. Upon the trial of any such action in a county court before the judge without a jury one or more assessors may be appointed for the purpose of ascertaining the amount of compensation, and for their appointment and remuneration, and their procedure regulations may be issued, varied, and repealed in the same manner as rules and regulations for regulating the practice and procedure in other actions in county courts. By section 9 the Act is not to come into operation until 1st January, 1882. By section 10 this Act may be cited as "The Employers' Liability Act, 1880," and shall continue in force till the 31st December, 1887, and to the end of the then next session of Parliament, and no longer, unless Parliament shall otherwise determine, and all actions commenced under this Act before that period shall be continued as if the said Act had not expired.

INDECENT ASSAULTS ON YOUNG PERSONS.

[43 and 44 Victoriæ, cap. 45.—7th September, 1880.]

An Act to amend the Criminal Law as to Indecent Assaults on Young Persons.

By section 1 the short title of the statute is "The Criminal Law Amendment Act, 1880." By section 2 it is enacted that it shall be no defence to a charge or indictment for an indecent assault on a young person under the age of thirteen to prove that he or she consented to the act of indecency. By section 3 this Act is not to apply to Scotland.

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5. LOCAL GOVERNMENT.

COUNTY BRIDGES LOANS' EXTENSION.

[43 and 44 Victoriæ, cap. 5.—19th July, 1880.]

An Act to make provision for borrowing in respect of certain County Bridges.

By section 1 the short title of the statute is "The County Bridges Loans' Extension Act, 1880," and by section 3 it is to be construed as one with "The Highways and Locomotives (Amendment) Act, 1878." Section 2 provides, that where under section 22 of the last-named Act (41 and 42 Vict., cap. 77) the county authority, as defined by that Act, see fit to make a contribution towards the cost of a bridge erected as therein mentioned, they may borrow on mortgage of the county rate all or any part of the amount of such contribution in the same manner in every respect as if the amount to be borrowed had been the amount of an estimate made and approved in the manner mentioned in 4 and 5 Vict., cap. 49; and all the powers, directions, and provisions of that Act are to extend and apply to the moneys borrowed under this Act; provided that the sum required for

or towards any such contribution as aforesaid may be borrowed in exercise of the power hereby conferred, although the same shall not exceed one-fourth of the amount of the ordinary annual assessment in the principal Act referred to.

UNION ASSESSMENT ACTS.

[43 and 44 Victoriæ, cap. 7.—19th July, 1880.]

An Act to extend the Union Assessment Committee Acts to single parishes under separate Boards of Guardians.

The preamble recites that under section 45 of "The Union Assessment Committee Act, 1862," as amended by subsequent Acts, it is provided that on the application of the body having the management of the relief of the poor in any union or incorporation under a Local Act, the Local Government Board may order such union or incorporation to be included in "The Union Assessment Committee Act, 1862," and declares it to be expedient to make a like provision as to single parishes which are not included in any union of parishes either under a Local Act or under "The Poor Law Amendment Act, 1834." By section 1 this Act may be cited as "The Union Assessment Act, 1880," and together with "The Union Assessment Committee Act, 1862," and "The Union Assessment Committee Amendment Act, 1864," may be cited as "The Union Assessment Acts, 1862 to 1880." By section 2 "The Union Assessment Committee Act, 1862," section 45 (25 and 26 Vict., cap. 103, section 45), is to apply to a parish which is not included in a union of parishes, and in which the relief of the poor is administered by a board of guardians elected under "The Poor Law Amendment Act, 1834," or under any Local Act, just as it applies to any union or incorporation for the relief of the poor formed under a Local Act, and "The Union Assessment Committee Act, 1862," and the Acts amending the same, are to be construed accordingly; and in relation to any such single parish the expression "common fund" in the said Act is to be construed to mean the money applicable to the relief of the poor. Section 3 exempts the Metropolis as defined by "The Valuation (Metropolis) Act, 1869," from the operation of this statute.

CENSUS OF ENGLAND.

[43 and 44 Victoriæ, cap. 37.—7th September, 1880.]

An Act for taking the Census of England.

Section 1 empowers the Local Government Board to superintend the taking of the census, and the Registrar-General is to issue all forms and instructions to the persons for whom they are intended, the expenses incurred being paid out of moneys provided by Parliament for that purpose. Sections 2 and 3 provide for the formation of registrars' sub-districts into enumerator's divisions, and for the appointment of enumerators. Section 4 requires schedules to be left to be filled up by or on behalf of the occupier of each dwelling with particulars as to name, sex, age, rank, profession, or occupation, condition as to marriage, relation to head of family and

birthplace of every living person abiding in the house on the night of Sunday, 3rd April, 1881, and also whether any were blind or deaf, dumb, or imbecile, or lunatic. One of the schedules is to be filled up by the occupier, or if the house is let or sublet in different stories or apartments and occupied distinctly by different persons or families, by the occupier of each distinct story or apartment, and the schedules are to be collected on the Monday next following. The penalty for neglect or refusal to comply with the requirements is to be not more than 5*l.*, or less than 20*s.* Section 5 requires the enumerators to collect the schedules, and to see that any errors in them are corrected. Section 6 requires the enumerators to take an account of houses inhabited or uninhabited, or building, and of the boundaries of parishes, parliamentary divisions, &c. The remaining sections provide for the due carrying out of the Act, and section 11 requires the overseers of the poor and relieving officers to act as enumerators when desired to do so.

CENSUS OF SCOTLAND.

[43 and 44 Victoriæ, cap. 38.—7th September, 1880.]

An Act for taking the Census of Scotland.

By section 1 one of Her Majesty's Principal Secretaries of State is to superintend the census, the forms and instructions being issued by the Registrar-General for Scotland. By section 5 the particulars to be supplied by the occupiers of each dwelling house are to include the name, sex, age, rank, profession of occupier, condition, relation to head of family, and birthplace, and whether any are blind, deaf and dumb, or lunatic or imbecile. The other sections of the Act supply the necessary details for the employment of enumerators, &c.

CENSUS OF IRELAND.

[43 and 44 Victoriæ, cap. 28.—26th August, 1880.]

An Act for taking the Census of Ireland.

Section 3 enacts that the census shall be taken on Monday, 4th April, 1881, and one or more consecutive days, by such officers and men of the police force of Dublin Metropolis, and of the Royal Irish Constabulary, with such other competent persons as the Lord Lieutenant shall direct. Under the same section the census is to include the sex, age, religious profession, birthplace, and occupation of all abiding in every house on the night of Sunday, 3rd April, 1881; and the number of inhabited and uninhabited houses and houses then building, and shall distinguish those places within each district respectively which are within the limits of any city or borough returning a member or members to serve in Parliament, and all such further particulars as the Lord Lieutenant may direct. Sections 4–11 give details as to the taking of the census, penalties for refusal to give information, &c.

6. SPECIAL LEGISLATION FOR IRELAND.

RELIEF OF DISTRESS (IRELAND).

[43 and 44 Victoriæ, cap. 14.—2nd August, 1880.]

An Act to amend "The Relief of Distress (Ireland) Act, 1880," and for other purposes relating thereto.

Section 1 gives the short title as "The Relief of Distress (Ireland) Amendment Act, 1880." Section 2, after stating the insufficiency of the sum which, by section 17 of "The Relief of Distress (Ireland) Act, 1880," the Commissioners of Church Temporalities in Ireland were allowed to advance to the Commissioners of Public Works, and affirming the desirability of enabling the Public Works Commissioners, on the recommendation of the Local Government Board, to advance moneys to boards of guardians authorised to give out-door relief under the Act, amends section 17 of the Act, to be read as if 1,500,000*l.* were substituted for 750,000*l.* To provide for this increased grant the Commissioners of Church Temporalities are empowered from time to time to vary the terms for the repayment of any loan made or to be made by the Commissioners for the Reduction of the National Debt, and the security for such loan; and the Treasury may, if they think fit, from time to time continue their guarantee to the loan and security varied as aforesaid. The Commissioners of Public Works in Ireland are authorised on the recommendation of the Local Government Board to grant to the board of guardians in any union authorised to give out-door relief under the third section of "The Relief of Distress (Ireland) Act, 1880," out of the said sum of 1,500,000*l.*, such moneys as the Local Government Board may find necessary, having regard to the financial condition of such union and the pressure of distress within its limits, to aid in giving out-door relief in such union: provided that the entire sum to be so granted shall not exceed 200,000*l.* By section 3 the Commissioners of Public Works may, if they think fit, from time to time, with the consent of the Treasury, out of any moneys placed at their disposal by Parliament for the making of loans or grants, apply such sums not exceeding in all the sum of 45,000*l.* as the Treasury may sanction for the purposes of "The Fishery Piers Act," to be expended in the manner therein mentioned, but subject to the conditions of this Act, provided that the power conferred upon the Commissioners by this section shall only be exercised with reference to works for which an application by memorial under "The Fishery Piers Act" shall have been made before the passing of this Act, or for which an application by memorial shall be made after the passing of this Act and before the 30th September, 1880. Section 4 relates to the terms upon which the Commissioners may undertake works, and section 5 to their power to undertake works, and section 6 relates to the management and maintenance of works when constructed. By section 7 the term on which loans may be made to boards of guardians is extended to twelve years, and the rate of interest to be charged by the Commissioners of Public Works to 1 per cent. per annum, while the payment of the first instalment may, with the consent of the Treasury, be postponed for any period not exceeding two years from the making of the loan,

during which no interest is to be charged. Section 8 refers to the funds for preliminary expenses of making loans under this Act. Section 9 empowers the Local Government Board, up to the 1st March, 1881, to authorise the grant of out-door relief in food and fuel, or either, by order. There are six other sections containing provisions for carrying out the Act.

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7. MISCELLANEOUS.

INDUSTRIAL SCHOOLS ACTS.

[43 and 44 Victoriæ, cap. 15.—2nd August, 1880.]

An Act to further amend "The Industrial Schools Act, 1866," *and "The Industrial Schools Act (Ireland)*, 1868."

The preamble recites that it is expedient that children who are growing up in the society of depraved and disorderly persons should be withdrawn from contaminating influences, and that the benefits of industrial school training should be extended to them, and by the first section the provisions of section 14 of "The Industrial Schools Act, 1866," and section 11 of "The Industrial Schools Act (Ireland), 1868," are extended to children lodging, living, or residing with common or reputed prostitutes, or in a house resided in or frequented by prostitutes for the purpose of prostitution, or who frequent the company of prostitutes. By section 2 the short title of this Act is "The Industrial Schools Acts Amendment Act, 1880."

WILD BIRDS' PROTECTION.

[43 and 44 Victoriæ, cap. 35.—7th September, 1880.]

An Act to amend the Laws relating to the Protection of Wild Birds.

By section 1, the words "wild birds" are for the purposes of this Act to include all wild birds. By section 2, a penalty not exceeding 1*l.* is to be inflicted on any person who, between 1st March and 1st August, in any year, is convicted of knowingly and wilfully shooting or attempt to shoot, or using any boat for the purpose of shooting, or causing to be shot, any wild bird, or using any lime, trap, snare, or other instrument for the purpose of taking any wild bird, or exposing or offering for sale, or having in his control or possession after the 15th March, any wild bird recently killed or taken, in the case of any wild bird which is included in the schedule. The fine for every such bird in respect of which an offence has been committed, is to be a sum not exceeding 1*l.*, and, in the case of any other wild bird, for a first offence the offender is to be reprimanded and discharged on payment of costs, and for every subsequent offence, he is to forfeit and pay for every such wild bird in respect of which an offence is committed, a sum of money not exceeding 5*s.*, in addition to the costs, unless such person shall prove that the said wild bird was either killed or taken or bought or received during the period in which such wild bird could be legally killed or taken, or from some person residing out

of the United Kingdom. This section is not to apply to the owner or occupier of any land, or to any person authorised by the owner or occupier of any land, killing or taking on such land any wild bird not included in the schedule. Sections 4 to 6 provide rules for the prosecution of offenders. Section 7 fixes 1st January, 1881, for the commencement of the operation of the Act, and on that date, the Acts 32 and 33 Vict., cap. 17, 35 and 36 Vict., cap. 78, and 39 and 40 Vict., cap. 29, are to be repealed. The time during which the killing and taking of wild birds is forbidden under the Act, may by section 8 be varied or extended by one of Her Majesty's Principal Secretaries of State, and the Lord Lieutenant of Ireland, on application of the justices in Quarter Sessions assembled, such variations or exclusions being published in the "London" or "Dublin Gazette," the publication of the order being evidence that it has been made. By section 9 under the same authority, any county or part of a county may be exempted from the operation of the Act.

GROUND GAME.

[43 and 44 Victoriæ, cap. 47.—7th September, 1880.]

An Act for the better protection of Occupiers of Land against Injury to their Crops from Ground Game.

Section 1 gives every occupier of land a right as inseparable from and incident to his occupation of the land to kill and take ground game thereon concurrently with any other person entitled to kill and take it on the same land, provided that (*a*) he and one other person duly authorised by him in writing, are to be entitled under this Act to kill ground game with fire-arms; (*b*) no person is to be authorised by him except a member of his household resident on the land in his occupation, a person in his ordinary service on such land, or any one other person *bonâ fide* employed by him for reward in the taking and destruction of ground game; and that any person so authorised shall on demand produce to any other having a concurrent right, the document by which he is authorised. A right of common over lands or an occupation for pasturage for not more than nine months, is not to constitute occupation in the sense of this Act. In the case of moorlands and uninclosed lands (not being arable lands) the occupier and the person authorised by him are only to exercise the rights from 11th December in one year until the 31st December in the next year, both inclusive. By section 2 when an occupier is entitled otherwise than by this Act to kill ground game on his land, he shall nevertheless have the right given by this Act. By section 3 all agreements in contravention of the right of occupier to destroy ground game are to be void. Section 4 exempts the occupier and person authorised by him from the payment of game licences, but not from "The Gun Licence Act, 1870."

ABSTRACTS OF PARLIAMENTARY AND OTHER OFFICIAL DOCUMENTS.

1. FINANCE, TAXATION, AND CURRENCY.

NATIONAL REVENUE AND EXPENDITURE.—The subjoined tables show the gross PUBLIC REVENUE and EXPENDITURE of the United Kingdom in the year ended 31st March, 1880:—

SOURCES OF REVENUE:—	£
Customs	19,326,000
Excise	25,300,000
Stamps	11,300,000
Land Tax and House Duty	2,670,000
Property and Income Tax	9,230,000
Post Office	6,350,000
Telegraph Service	1,420,000
Crown Lands (Net)	390,000
Interest on Advances for Local Works and on Purchase Money of Suez Canal Shares	1,254,596
Miscellaneous	4,024,459
Total Income	£81,265,055
Income for year estimated in Budget	£83,055,000
Deficiency of Income under Budget Estimate	£1,789,945

BRANCHES OF EXPENDITURE:—	£
Permanent Charge of Debt:—	
Interest (except as below) and Management of the Debt	21,504,330
Terminable Annuities	5,717,471
Interest of Exchequer Bills, &c.	127,134
New Sinking Fund	651,063
Interest, &c., not forming part of the above Permanent Charge, viz.:—	
Interest on Loans for Local Purposes	341,804
Interest on Supply Exchequer Bonds	190,375
Interest and Principal of Exchequer Bonds (Suez)	199,955
Interest on Stock Created for Loan to India	30,738
Other Charges on Consolidated Fund:—	
Civil List	407,467
Annuities and Pensions	314,559
Salaries and Allowances	93,889
Courts of Justice	624,179
Miscellaneous Services (Ordinary)	158,447
Voted Supply Services:—	
Army Services (including Army Purchase)	15,645,866
,, ,, Charges on account of Troops in India	1,115,050
Navy Services	10,416,131
Votes of Credit:—	
War in South Africa	2,772,720
Griqualand West	222,200
Sikukuni Expedition	250,000
Abyssinian Expedition	633
Miscellaneous Civil Services	15,324,596
Customs and Inland Revenue Departments	2,784,316
Post Office	3,333,000
Telegraph Service	1,107,000
Post Office Packet Service	772,820
Total Ordinary Expenditure	£84,105,753
Estimated on Budget and Supplementary Votes	£85,999,871
Less than Estimates by	1,894,117

CUSTOMS AND EXCISE.—The Produce of the two great sources of PUBLIC REVENUE, CUSTOMS and EXCISE, which together contribute considerably more than One-Half to the NATIONAL INCOME of the UNITED KINGDOM, was as follows in the financial year ending March 31, 1880:—

CUSTOMS DUTIES on Articles usually contributing not less than £1,000 Annually.	Gross Receipts. £	s.	d.
Beer, Spruce	2,302	18	2
—— Of other Sorts, including Mum	2,057	6	9
Chicory	72,368	16	11
Cocoa, Cocoa Husks, and Chocolate	46,397	2	3
Coffee	208,837	13	2
Currants	276,698	2	5
Figs	26,519	3	4
Plate, Gold and Silver	5,294	0	7
Plums, Dried or Preserved, French Plums and Prunelloes	2,289	4	6
Prunes	3,135	10	2
Raisins	155,999	15	9
Spirits, Colonial and Foreign:—			
Rum	2,352,630	19	1
Brandy	1,788,373	13	10
Geneva	107,337	12	5
Of other sorts	437,013	0	3
Tea	3,703,469	15	8
Tobacco and Snuff	8,630,567	9	10
Wine	1,394,062	3	8
All other Articles	2,941	16	10
Charges on deliveries from the Bonded Warehouses	34,450	14	8
	£19,252,747	0	3
Duties collected at the Isle of Man	49,107	17	7
Total Customs	£19,301,854	17	10
Drawbacks, Repayments, &c.	132,249	12	2
Net Produce	£19,169,605	5	8

EXCISE DUTIES.	Gross Receipts. £	s.	d.
Chicory	2,065	12	11
Licences, viz.:			
Auctioneers, Appraisers, &c.	81,620	0	0
Beer, Cider, and Perry	391,017	9	1¾
Brewers	405,021	15	0
Dog	372,054	0	0
Establishment, viz.:			
Armorial Bearings	80,382	15	0
Carriages	555,183	15	0
Male Servants	140,477	5	0
Game	150,374	0	0
Gold and Silver Plate	43,073	10	9
Gun	76,586	10	0
Hawkers and Pedlars	26,015	9	0
Maltsters	13,787	19	3½
Medicine Vendors	4,779	0	0
Pawnbrokers	32,790	0	0
Refreshment Houses	9,592	10	9
Spirit (Distillers, Dealers, and Publicans)	852,029	7	6½
Tobacco	87,988	15	9
Wine and Sweets	210,950	5	11½
Other than the foregoing	6,899	5	1
Malt	6,945,369	2	5¾
Sugar used in Brewing	628,405	17	10¾
Railways	726,137	18	2½
Spirits	14,118,677	9	9
Total Excise	£25,961,279	14	6½
Deductions on account of Drawbacks, Discounts, Parliamentary Allowances, Repayments, &c.	£742,976	7	11½
Net Produce	£25,218,303	6	6¾

STAMPS.—The following table gives the gross receipts from Stamps in the United Kingdom during the year ended the 31st of March, 1880:—

Heads of Duty.	Gross Receipts. £	s.	d.
Probates of Wills and Letters of Administration	2,677,861	11	7
Legacies and Successions	3,722,022	3	3
Total Probate and Legacy Duties	6,399,883	14	10
Deeds and other Instruments, not included under the following heads	2,093,488	6	10¾
Bills of Exchange	720,014	7	9
Bankers' Notes	376	17	6
Composition for the Duties on the Bills and Notes of the Banks of England and Ireland, and of Country Bankers	127,385	10	0
Cards	13,594	1	9
Gold and Silver Plate	63,784	8	11¾
Licences and Certificates	145,822	10	0
Marine Insurances	121,377	10	2
Medicine	135,366	3	0
Patents for Inventions	179,044	0	0
Receipts, Drafts and other 1*d.* Stamps	825,349	7	9
District Audit	20,249	5	0
Total Stamps, exclusive of Fee Stamps	10,845,736	3	7½

Heads of Duty.	Gross Receipts. £	s.	d.
Fee Stamps, viz.:			
Admiralty Court (Ireland)	531	16	6
Bankruptcy Court (England)	85,003	17	5
Bankruptcy Court (Ireland)	6,534	0	0
Chancery Fund (Ireland)	554	4	3¾
Civil Service Commission	8,845	10	0
Colonial Stock Act	5	0	0
Companies Registration	19,303	1	4
Copyhold, Inclosure, and Tithes Commission	6,205	16	6
County Courts (Ireland)	35,127	1	9
Courts of Survey—Merchant Shipping	40	15	0
Crown Office	460	17	10
Judgments Registry Fund (Ireland)	3,855	13	6
Judicature (England)	368,353	4	9
,, (Ireland)	41,109	17	0
Land Registry (England)	858	6	3
Law Courts (Scotland)	5,650	0	0
London Gazette	30,414	5	0
Lord Chancellor's Presentation	383	0	0
Patent Hearings and Disclaimers	345	10	0
Police Courts (Metropolitan Police District)	9,037	8	0
Public Record	462	5	0
Railway Commission	231	5	0
Record of Title (Ireland)	59	0	0
RegisterHouse (Scotland)	43,273	8	9
Registration of Deeds (Ireland)	15,155	2	9
Warrants for Letters Patent under the Great Seal	403	10	0
Total Fee Stamps	£682,203	16	7¾
Total Stamps	£11,527,940	0	3¼
Drawbacks, Discounts, Allowances, &c.	£221,025	16	7½
Net Produce	£11,306,914	3	7¾

NATIONAL REVENUE FROM 1859 TO 1880.—The following table shows the total gross Revenue in each of the financial years ended March 31, from 1859 to 1880, inclusive, and the proportion of receipts per head of population of the United Kingdom:—

Year ended March 31.	Revenue. £	Proportion per head of Population. £	s.	d.
1859	65,477,284	2	6	3
1860	71,089,669	2	9	10
1861	70,283,674	2	8	11
1862	69,674,479	2	8	3
1863	70,603,561	2	8	4
1864	70,208,964	2	7	7
1865	70,313,437	2	7	0
1866	67,812,292	2	5	1
1867	69,434,568	2	5	8
1868	69,600,218	2	5	6
1869	72,591,991	2	6	8
1870	75,434,252	2	8	4
1871	69,945,220	2	4	5
1872	74,708,314	2	7	3
1873	76,608,770	2	8	2
1874	77,335,657	2	8	2
1875	74,921,873	2	6	3
1876	77,131,693	2	7	1
1877	78,565,036	2	7	6
1878	79,763,298	2	7	8
1879	83,115,972	2	9	2
1880	81,265,055	2	7	7

NATIONAL EXPENDITURE FROM 1859 TO 1880.—The following table shows the total amount of National Expenditure for each of the financial years ended March 31, from 1859 to 1880, inclusive, and the proportion of receipts per head of population of the United Kingdom:—

Year ended March 31.	Expenditure. £	Proportion per Head of Population. £	s.	d.
1859	64,663,882	2	5	8
1860	69,502,289	2	8	8
1861	72,792,059	2	10	8
1862	71,116,485	2	9	11
1863	69,302,008	2	8	2
1864	67,056,286	2	6	0
1865	66,462,207	2	5	0
1866	65,914,357	2	4	2
1867	66,780,396	2	4	0
1868	71,236,242	2	6	6
1869	72,069,961	2	8	6
1870	68,864,752	2	4	0
1871	69,548,539	2	4	3
1872	71,490,020	2	5	0
1873	70,714,448	2	4	5
1874	76,466,510	2	7	7
1875	74,328,040	2	5	10
1876	76,621,773	2	6	10
1877	78,125,227	2	7	2
1878	82,403,495	2	9	3
1879	85,407,789	2	10	6
1880	84,105,754	2	9	3

NATIONAL DEBT.—The following table shows the total amount of the Funded Debt of the United Kingdom on the 31st of March, 1879, the Debt created and reduced in the year ended 31st March, 1880, and the balance at the latter date:—

	£	s.	d.
Total Funded Debt on 31st March, 1879 .	709,430,593	13	0
Debt created in year ended 31st March, 1880.	2,049,259	5	9
Total	711,479,852	18	9
Debt reduced in year ended 31st March, 1880.	1,003,493	15	0
Balance, being total Funded Debt on 31st March, 1880 . . .	710,476,359	3	9

The following table shows the state of the above Public Funded Debt of the United Kingdom on 31st March, 1880:—

Capital Funded Debt:— Great Britain.	Capitals. £	s.	d.
New Annuities, at 2½ per cent.	3,747,874	11	7
Exchequer Bonds, created per 16 Vict., c. 23, at 2½ per cent.	418,300	0	0
Total, at 2½ per cent .	£4,166,174	11	7
Debt due to the Bank of England, at 3 per cent.	11,015,100	0	0
Consolidated Annuities, at 3 per cent.	390,896,871	5	3
Reduced Annuities, at 3 per cent. . . .	92,325,310	2	11
New Annuities, at 3 per cent.	178,026,577	7	11
Total, at 3 per cent. .	£672,263,858	16	1
New Annuities, at 3½ per cent.	225,746	6	4
Total, Great Britain	£676,655,779	14	0

Ireland.	£	s.	d.
New Annuities, at 2½ per cent.	2,330	0	0
Debt due to the Bank of Ireland, at 3 per cent.	2,630,769	4	8
Consolidated Annuities, at 3 per cent. .	4,923,989	19	5
Reduced Annuities, at 3 per cent. . . .	136,675	3	6

Ireland.	Capital. £	s.	d.
New Annuities, at 3 per cent.	26,126,815	2	2
Total, at 3 per cent. .	£33,818,249	9	9
Total, Ireland . . .	£33,820,579	9	9
Total Capital of the Funded Debt of the United Kingdom, on 31st March, 1880 .	710,476,359	3	9

CHARGES ON NATIONAL DEBT.—The following table shows the annual charges on the Funded Debt of the United Kingdom, in the year ended the 31st of March, 1880:—

	Annual Charge. £	s.	d.
Funded Debt	21,263,160	19	7
Terminable Annuities:			
Annuities, per 18 Vict., c. 18, expiring 5 April, 1885. . .	116,000	0	0
Annuities, per 23 & 24 Vict., c. 109, and subsequent Acts, expiring 5 April, 1885 (Fortifications) . .	589,722	0	0
Annuity, per 26 Vict., c. 14, expiring 5 April, 1885. . .	9,983	7	3
Annuities, per 32 & 33 Vict., c. 59, and 29 Vict., c. 5, expiring at various dates in 1885 (payable yearly)	3,617,845	0	0
Annuities, per 35 & 36 Vict., c. 68, expiring at various dates in 1885 (payable yearly), "The Military Forces Localization Act". . .	378,831	0	0
Red Sea and India Telegraph Company's Annuity, 25 & 26 Vict., c. 39, expiring 4th August, 1908 .	36,000	0	0
Sinking Fund Annuity on New 2½ per Cents., per 33 & 34 Vict., c. 71, s. 69 .	6,906	14	7
Annuities for Terms of Years, per 10 Geo. 4, c. 24, and 3 Will. 4, c. 14, expiring at various periods	35,644	4	6
Life Annuities, per 10 Geo. 4, c. 24, 3 Will. 4, c. 14, 16 & 17 Vict. c. 45, and 27 & 28 Vict. c. 43 . . .	933,435	6	10
Exchequer Tontine Annuities, per 29 Geo. 3, c. 41	13,771	0	11

	Annual Charge. £	s.	d.
Management:			
Great Britain . . .	212,097	0	10
Ireland	9,335	15	2
Total amount of charge on 31st March, 1880.	27,222,732	9	8
Charges on Debt created in the year ended 31st March, 1880:—			
Funded Debt:—			
Capital (Consols) created per Act 42 & 43 Vict., c. 61, "The East Indian Loan (Annuities) Act, 1879"	61,477	15	7
Terminable Annuities:—			
Annuities for Terms of Years, per 10 Geo. 4, c. 24	902	12	6
Life Annuities, per 10 Geo. 4, c. 24, 16 & 17 Vict., c. 45, and 27 & 28 Vict., c. 43	77,336	5	0
Contributors' Shares in Exchequer Tontine Annuities, increased	228	19	1
Management increased .	560	2	6
Total Charge on Debt created in the year ended 31st March, 1880	140,505	14	8
Total Charge . . .	£27,363,238	4	4

LOCAL TAXATION.—The annual local taxation return (England) for the year 1878-79, the ninth annual return of local taxation, tabulated under the direction of the Local Government Board, shows that the total raised during 1878–79 by local taxation was 30,898,828*l*. In addition Treasury subventions amounting to 2,153,362*l*. were received in easement of the local rates, making a total of 33,052,190*l*. Of this sum 27,832,170*l*. was levied by rates falling on rateable property; 4,763,437*l*. by tolls, dues, and rents falling on traffic; and 456,583*l*. by duties falling on consumable articles. It is stated in the memorandum that the Treasury grants in aid of local taxation exceed the sums entered in the accounts of the local authorities forwarded to the Local Government Board. This difference arises, for the most part, from the Government taking upon itself several charges in relief of local taxation that do not appear in the annual returns. The sum voted by Parliament for the financial year 1878–79 was, for England, 2,873,675*l*.

COINAGE OF THE ROYAL MINT.—The amount of gold, silver, and copper moneys coined at the Royal Mint in each year from 1861 to 1879 was as follows:—

Years.	Gold.	Silver.	Copper.
	£	£	£
1861	8,190,170	209,484	273,578
1862	7,836,413	148,518	352,800
1863	6,997,212	161,172	151,648
1864	9,535,597	535,194	18,069
1865	2,367,614	501,732	57,493
1866	5,076,676	493,416	50,624
1867	496,397	193,842	33,301
1868	1,653,384	301,356	16,328
1869	7,372,204	76,428	20,832
1870	2,373,384	336,798	32,704
1871	9,919,656	701,514	7,616
1872	15,261,442	1,243,836	47,413
1873	3,384,568	1,081,674	46,218
1874	1,461,565	890,604	65,632
1875	243,264	594,000	69,813
1876	4,696,648	222,354	61,450
1877	981,468	420,948	51,146
1878	2,265,069	613,998	17,024
1879	35,050	549,054	44,651

CUSTOMS REVENUE.—The following table shows the percentage of increase or decrease of revenue derived from Customs, compensation being made for alteration of duties, in connection with the percentage increase of population in the United Kingdom in each of the following calendar years:—

Year.	Population of the United Kingdom.	Revenue of Customs.	Increase or Decrease in Consumption of
1873	+ ·9	+4·9	Spirits, Tea, Tobacco, and Wine.
1874	·9	+2·7	Spirits
1875	·9	+5·3	Spirits, Tea, Tobacco.
1876	1·	+ ·7	Tea, Tobacco, Wine.
1877	1·	−1·5	Spirits. Wine.
1878	1·	−1·1	Spirits. Wine.
1879	1·	−2·	Spirits. Wine.

NATIONAL DEBT.—The following table shows the total amount of the National Debt at the end of each financial year from 1864 to 1880 inclusive:—

Financial Years ended 31st March	Funded Debt. Capital of Unredeemed Funded Debt, inclusive of Unclaimed Stock and Dividends.	Funded Debt. Estimated Capital of Terminable Annuities (Computed in 3 per Cent. Stock).	Amount of Unfunded Debt.	Total Amount of National Debt, inclusive of Unclaimed Stock and Dividends.
	£	£	£	£
1864	781,712,401	26,442,428*	13,136,000	821,290,829
1865	780,202,104	24,307,822	10,742,500	815,252,426
1866	773,941,190	23,833,621	8,187,700	805,962,511
1867	770,188,625	25,607,076	7,956,800	803,752,501
1868	741,844,981*	53,258,874	7,911,100	803,014,955
1869	741,112,640	51,913,623	9,896,100†	802,922,363
1870	741,514,681	49,667,479	6,761,500	797,943,660
1871	732,043,270	54,413,310	6,091,000	792,547,580
1872	731,756,962	52,286,775	5,155,100	789,198,837
1873	727,374,082	50,201,768	4,829,100	782,404,950
1874	723,514,005	48,024,178	4,479,600	776,017,783
1875	714,797,715	52,311,487	5,239,300	772,348,502
1876	713,657,517	49,078,792	11,401,800‡	774,138,109
1877	712,621,355	46,549,819	13,943,800‡	773,114,974
1878	710,843,007	43,644,057	20,603,000‡	775,090,064
1879	709,430,593	40,345,454	25,870,100‡	775,646,147
1880	710,476,359	36,222,976	27,344,900‡	774,044,235

* Alterations in amounts of Capital of Unredeemed Funded Debt and of Terminable Annuities chiefly caused by the conversion, in 1868, of Stock into Terminable Annuities.
† Including 1,000,000*l.* borrowed in aid of Ways and Means.
‡ Including Bonds (Suez Canal) to the amount of 4,000,000*l.* in 1876.
‡ Do. do. do. 3,990,000*l.* in 1877.
‡ Do. do. do. 3,929,200*l.* in 1878.
‡ Do. do. do. 3,866,300*l.* in 1879.
‡ Do. do. do. 3,801,000*l.* in 1880, and also 1,000,000*l.* borrowed in aid of Ways and Means.

Note.—The estimated Capital of the Terminable Annuities does not agree with that published in former abstracts, a different basis of calculation having been adopted.

INCOME TAX.—The following table shows the net receipt in the years ended 31st March, 1878 and 1879, appropriated to schedules:—

Schedule.	Year ending 31st March. 1878.*	1879.†	Increase.	Decrease.
	£	£	£	£
A.	1,986,579	3,026,844	1,040,265	—
B.	216,937	320,752	103,815	—
C.	496,943	764,118	267,175	—
D.	2,820.566	4,273,662	1,453,096	—
E.	320,240	480,115	159,875	—
	5,841,265	‡8,865,491	3,024,226	—

* Rate of tax, 3*d.* in the pound on incomes of 150*l.* and upwards.
† Rate of tax, 5*d.* in the pound on incomes of 150*l.* and upwards.
‡ Including arrears of 1877–78, at the rate of 3*d.* in the pound.

The following is a Return of the Quarterly Averages of the Weekly Liabilities and Assets of the Bank of England from 1864 to 1879:—

Years.	Quarter ended	Liabilities.			Assets.		
		Notes in Circulation.	Deposits.	Total.	Securities.	Bullion.	Total.
		£	£	£	£	£	£
1864	March 23	20,813,000	21,067,000	41,880,000	31,608,000	13,771,000	45,379,000
	June 22	21,263,000	20,648,000	41,911,000	31,702,000	13,485,000	45,187,000
	September 28	21,592,000	19,166,000	40,758,000	31,395,000	13,062,000	44,457,000
	December 28	20,771,000	19,070,000	39,841,000	29,570,000	13,636,000	43,206,000
1865	March 29	20,560,000	20,157,000	40,717,000	30,572,000	14,582,000	45,154,000
	June 28	21,525,000	20,850,000	42,375,000	30,967,000	15,388,000	46,355,000
	September 27	22,450,000	19,666,000	42,116,000	31,908,000	14,557,000	46,465,000
	December 27	21,819,000	18,365,000	40,184,000	30,613,000	13,601,000	44,214,000
1866	March 28	21,436,000	17,783,000	39,219,000	30,058,000	13,570,000	43,628,000
	June 27	24,588,000	22,198,000	46,786,000	37,384,000	13,571,000	50,955,000
	September 26	25,193,000	21,566,000	46,749,000	36,536,000	14,872,000	51,408,000
	December 26	23,728,000	22,740,000	46,468,000	33,110,000	17,478,000	50,588,000
1867	March 27	23,147,000	24,549,000	47,696,000	32,865,000	19,258,000	52,123,000
	June 26	23,538,000	24,896,000	48,434,000	32,319,000	20,117,000	52,436,000
	September 25	24,486,000	25,341,000	49,827,000	30,671,000	23,420,000	54,091,000
	December 24	24,706,000	23,850,000	48,556,000	29,960,000	22,561,000	52,521,000
1868	March 25	24,190,000	23,967,000	48,157,000	31,474,000	21,652,000	53,126,000
	June 24	24,503,000	24,474,000	48,977,000	32,460,000	21,238,000	53,698,000
	September 30	24,853,000	22,519,000	47,372,000	31,036,000	21,277,000	52,313,000
	December 30	24,336,000	22,409,000	46,745,000	33,935,000	18,981,000	52,916,000
1869	March 31	23,909,000	22,337,000	46,246,000	34,448,000	18,303,000	52,751,000
	June 30	23,834,000	21,827,000	45,661,000	34,133,000	17,718,000	51,851,000
	September 29	24,153,000	21,405,000	45,558,000	31,562,000	20,396,000	51,958,000
	December 29	23,910,000	21,305,000	45,215,000	32,373,000	18,827,000	51,200,000
1870	March 30	23,255,000	26,900,000	50,155,000	33,828,000	19,786,000	53,614,000
	June 29	23,576,000	26,303,000	49,879,000	32,530,000	20,460,000	52,990,000
	September 28	24,367,000	25,768,000	50,135,000	33,104,000	20,545,000	53,649,000
	December 28	24,539,000	24,196,000	48,735,000	29,513,000	22,311,000	51,824,000

1871	March	24,158,000	27,902,000	52,060,000	33,578,000	21,945,000	55,523,000
	June	24,705,000	28,762,000	53,467,000	32,391,000	24,192,000	56,583,000
	September	25,668,000	29,061,000	54,729,000	32,909,000	25,264,000	58,173,000
	December	25,625,000	28,010,000	53,635,000	33,827,000	22,952,000	56,779,000
1872	March	25,274,000	30,445,000	55,719,000	35,156,000	24,028,000	59,184,000
	June	25,880,000	29,446,000	55,326,000	36,561,000	21,978,000	58,539,000
	September	26,588,000	28,740,000	55,328,000	35,916,000	22,957,000	58,873,000
	December	25,983,000	26,645,000	52,628,000	34,468,000	21,379,000	55,847,000
1873	March	25,479,000	31,264,000	56,743,000	35,568,000	24,724,000	60,292,000
	June	26,169,000	31,503,000	57,672,000	39,156,000	21,744,000	60,900,000
	September	26,407,000	26,396,000	52,803,000	42,914,000	23,464,000	56,378,000
	December	26,219,000	25,079,000	51,298,000	33,633,000	20,869,000	54,502,000
1874	March	25,960,000	26,308,000	52,268,000	32,904,000	22,927,000	55,831,000
	June	26,628,000	26,753,000	53,381,000	34,154,000	22,376,000	56,530,000
	September	27,166,000	23,597,000	50,763,000	31,457,000	22,846,000	54,303,000
	December	26,877,000	23,740,000	50,617,000	32,679,000	21,028,000	53,707,000
1875	March	26,313,000	24,743,000	51,056,000	33,103,000	21,445,000	54,548,000
	June	27,461.000	25,574,000	53,035,000	33,796,000	22,346,000	56,142,000
	September	28,673,000	29,067,000	57,740,000	32,917,000	28,322,000	61,239,000
	December	28,356,000	26,267,000	54,623,000	34,134,000	23,579,000	57,713,000
1876	March	27,118,000	26,662,000	53,780,000	34,336,000	22,932,000	57,268,000
	June	27,917,000	28,610,000	56,527,000	32,513,000	27,120.000	59,633,000
	September	28,653,000	33,669,000	62,322,000	32,314,000	33,456,000	65,770,000
	December	28,565,000	33,043,000	61,608,000	33,440,000	31,272,000	64,712,000
1877	March	27,946,000	31,163,000	59,109,000	35,680,000	26,898,000	62,578,000
	June	28,535,000	29,260,000	57,795,000	35,291,000	25,613,000	60,904,000
	September	28,619,000	28,038,000	56,657,000	34,235,000	25,857,000	60,092,000
	December	27,762,000	25,138,000	52,950,000	32,953,000	23.128,000	56,081,000
1878	March	27,246,000	30,439,000	57,685,000	36,601,000	24,560,000	61,161,000
	June	27,961,000	29,161,000	57,122,000	36,982,000	23,285,000	60,267,000
	September	27,892,000	25,231,000	53,123,000	34,144,000	22,462,000	56,606,000
	December	30,282,000	30,324,000	60,606,000	38,326,000	25,501,000	63,827,000
1879	March	31,084,000	36,991,000	68,075,000	40,599,000	31,118,000	71,717,000
	June	29,512,000	37,164,000	66,676,000	36,170,000	33,695,000	69,865,000
	September	29,260,000	36,932,000	66,192,000	34,425,000	35,225,000	69,650,000
	December	28,296,000	35,650,000	63,946,000	37,016,000	30,041,000	67,057,000

BANK RATE.—The following Table shows the Average Minimum Rate per cent. of Discount charged by the Bank of England in each Month, in each Year from 1866 to 1879:—

Months.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
January	8	3½	2	3	3	2½	3	4½	3½	4½	4⅝	2	3¾	4½
February	7½	3	2	3	3	2½	3	3½	3½	3½	4	2	2	3
March	6½	3	2	3	3	3	3	3½	3½	3½	3⅞	2	2⅛	2⅝
April	6	3	2	4	3	2¾	3⅝	4	3½	3½	2⅞	2	3	2⅝
May	9¾	3	2	4½	3	2½	4⅝	5½	4	3½	2	2⅞	3	2
June	10	2½	2	4	3	2⅝	3½	6½	2¾	3½	2	3	2½	2
July	10	2½	2	3½	3½	2½	3¼	4⅞	3	3	2	2¼	3½	2
August	8½	2	2	2¾	5	2	3½	3¼	3⅝	2¼	2	2⅛	4⅝	2
September	5	2	2	2½	3½	2⅝	3⅝	3¼	3	2	2	3	5	2
October	4½	2	2	2½	2½	2⅝	5⅝	6	3½	3½	2	4½	5½	2
November	4	2	2½	3	2½	4½	6¼	8½	4½	3½	2	4⅞	5⅝	2⅞
December	3¾	2	3	3	2½	3¼	5⅜	5¼	6	3	2	4	5	3
Average for the Year	7	2½	2¼	3¼	3⅛	2⅞	4⅛	4⅜	3¾	3¼	2⅝	2⅞	3¾	2⅜

PRICE OF STOCK.—The following Table shows the average price per 100*l.* of the Three per Cent. Consolidated Stock of the Public Funds of the United Kingdom in each Month, in each Year from 1866 to 1879:—

Months.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
January	87½	90¾	92⅝	92⅞	92⅜	92⅜	92⅝	92⅛	92⅛	92⅜	93⅞	95¼	95 5/16	95¾
February	87½	90⅞	93⅛	93	92½	91½	92½	92⅜	92⅛	92 1/16	94 3/16	95 1/16	95 1/16	96¼
March	87	91	93⅛	92⅞	92⅞	92	92⅜	92⅝	92	93	94 1/16	96 7/16	95¼	96⅜
April	86⅝	90¾	93½	93⅛	93⅜	93	92¼	93¼	92½	93½	94 1/16	95⅝	94 1/16	98⅛
May	86½	92½	94⅛	93	94⅛	93½	93⅛	93½	93¼	94	96	94¼	96 3/16	98¾
June	86¼	94⅛	94⅞	92⅝	92¾	92	92⅜	92¼	92⅜	93	94¼	94½	95⅝	97¼
July	87½	94½	94⅝	93	91⅛	93½	92½	92½	92⅝	94¼	95¼	94½	95 1/16	97⅞
August	88¼	94½	94	93	90¾	93½	92	92¾	92⅜	94⅜	96 7/16	95⅛	94 1/16	97¾
September	89¼	94⅝	94⅛	92⅞	92	93⅛	92⅜	92½	92⅝	94⅜	95⅜	95½	94 1/16	97¼
October	89⅜	94⅞	94½	93⅜	92½	92½	92¼	92½	92¾	94 9/16	95 7/16	95⅜	94¼	98
November	89¾	94½	94⅛	93⅝	92¾	93¼	92⅜	92⅝	93⅛	94⅞	95¼	96 1/16	95 1/16	98¼
December	89	92¼	92⅜	92⅛	91⅜	92¼	91⅝	92	91⅝	93⅜	94	95 5/16	94⅝	97⅜
Average for the Year	88	93	93⅜	92⅞	92¼	92⅜	92½	92½	92½	93¾	95	95⅝	95 3/16	97½

2. GENERAL COMMERCE AND NAVIGATION.

NAVIGATION RETURNS.—The subjoined table shows the tonnage of British and Foreign vessels (sailing and steam) entered and cleared, *with cargoes*, at ports in the United Kingdom, from and to foreign countries and British Possessions, from 1861 to 1879:—

Years.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1861 ..	6,307,737	4,297,442	10,605,179	6,841,808	4,477,996	11,319,804
1862 ..	6,591,654	4,149,154	10,740,808	7,400,454	4,309,395	11,709,849
1863 ..	7,302,039	3,835,319	11,137,358	7,961,008	3,926,797	11,887,805
1864 ..	7,813,179	3,488,931	11,302,110	8,596,234	3,576,540	12,172,774
1865 ..	8,356,914	3,801,780	12,158,694	9,056,729	3,770,422	12,827,151
1866 ..	9,215,820	4,061,370	13,277,190	9,954,147	4,055,947	14,010,094
1867 ..	9,356,814	3,984,634	13,341,448	10,586,058	4,261,523	14,847,581
1868 ..	9,572,450	4,279,207	13,851,657	10,902,171	4,570,818	15,473,019
1869 ..	10,042,182	4,444,518	14,486,700	11,313,757	4,603,227	15,916,984
1870 ..	10,308,952	4,601,790	14,910,742	11,934,087	4,779,851	16,713,938
1871 ..	11,250,120	5,205,222	16,455,342	13,396,583	5,650,872	19,047,455
1872 ..	12,139,805	5,766,135	17,905,940	13,574,471	5,673,881	19,248,352
1873 ..	12,474,912	6,320,145	18,795,057	13,653,030	5,486,335	19,139,365
1874 ..	12,751,128	6,330,278	19,081,406	14,010,786	5,742,701	19,753,487
1875 ..	12,852,351	6,187,577	19,039,928	14,454 989	5,958,750	20,413,739
1876 ..	13,672,122	7,354,549	21,026,671	15,201,602	6,309,111	21,510,713
1877 ..	14,894,448	7,237,176	22,131,624	15,358,033	5,837,323	21,195,356
1878 ..	14,513,688	6 804.558	21,318,246	15,783,488	5,798.200	21,581,688
1879 ..	15,039,579	6,059,765	21,099,344	17,095,146	5.754.211	22,849.357

IMPORTS INTO THE UNITED KINGDOM.—The following table gives the quantities of the chief articles imported into the United Kingdom in the year ended the 31st of December, 1879:—

Articles.		Quantity.
Animals:—		
Oxen, Bulls, Cows, and Calves	No.	247,768
Sheep and Lambs	,,	944,888
Bacon and Hams	Cwts.	4,917,631
Beef	,,	812,237
Bones, except Whalefins	Tons	72,180
Brimstone	Cwts.	820,634
Bristles	Lbs.	1,631,585
Butter	Cwts.	2,045,399
Candles, Stearine	,,	113,185
Caoutchouc	,,	150,601
Cheese	,,	1,789,721
Clocks	No.	829,916
Cocoa	Lbs.	26,155,788
Coffee	Cwts.	1,609,386
Corn, Wheat	,,	59,591,795
—— Barley	,,	11,546,314
—— Oats	,,	13,471,660
—— Maize	,,	36,148,379
—— Other kinds	,,	4,558,673
—— Flour of Wheat	,,	10,728,252
—— —— Of other kinds.	,,	698,670
Total of Corn	,,	136,743,743
Cotton, Raw	,,	13,119,272

Articles.		Quantity.
Dyeing (or Tanning) Stuffs:—		
Cochineal, Granilla, and Dust	Cwts.	27,952
Cutch and Gambier	Tons	25,634
Garancine	Cwts.	1,489
Indigo	,,	80,146
Madder	,,	13,712
Madder Root	,,	7,751
Shumach	Tons	12,131
Valonia	,,	34,217
Eggs	No.	766,707,840
Fish	Cwts.	1,160,140
Flax and Hemp:—		
Flax, Dressed and Undressed	,,	1,433,054
Tow or Codilla of Flax and Hemp	,,	340,594
Hemp and other like Substances (except Jute), Dressed and Undressed	,,	1,170,080
Jute	,,	4,759,363
Fruits:—		
Currants	,,	1,148,512
Raisins	,,	585,538
Oranges and Lemons	Bush.	3,433,059
Glass of all Kinds	Cwts.	1,147,621
Guano	Tons	77,015
Gutta-percha	Cwts.	51,416
Hair:—		
Goats' Hair or Wool	Lbs.	10,072,700
Hides, Tanned and Untanned	Cwts.	1,326,168
Hops	,,	262,765

Articles.		Quantity.
Lard	Cwts.	840,819
Leather Gloves	Pairs	12,752,964
Meat, Salted or Fresh	Cwts.	153,284
—— Preserved, other than Salted	,,	567,877
Metals:—		
Copper Ore and Regulus	Tons	133,976
Copper, Unwrought and part Wrought, and old Copper	Cwts.	994,960
Iron, in Bars	Tons	95,549
Iron and Steel Wrought or Manufactured	Cwts.	2,246,387
Lead, Pig and Sheet	Tons	102,089
Tin, in Blocks, Ingots, Bars, or Slabs, and Regulus	Cwts.	335,266
Zinc, Crude, in Cakes	Tons	33,903
—— Manufactures	Cwts.	309,425
Oil, Fish	Tuns	20,196
—— Palm	Cwts.	881,329
—— Cocoa Nut	,,	199,991
—— Olive	Tuns	26,198
—— Seed	,,	15,865
—— Turpentine	Cwts.	257,232
Oil Seed Cake	Tons	217,184
Paper, for Printing or Writing	Cwts.	238,088
Petroleum, Unrefined	Galls.	477,036
—— Refined	,,	42,803,255
Pork	Cwts.	441,209
Potatoes	,,	9,357,179
Pyrites of Iron or Copper	Tons	481,392
Rags and Paper-making Materials:—		
Rags	,,	17,928
Esparto and other Materials	,,	189,778
Rice, not in the Husk	Cwts.	6,857,330
—— in the Husk	Qrs.	—
Rosin	Cwts.	1,155,523
Saltpetre	,,	304,331
—— Cubic Nitre	,,	1,113,191
Seeds:—		
Clover and Grass	,,	344,795
Cotton	Tons	179,166
Flax and Linseed	Qrs.	1,651,083
Rape	,,	361,474
Silk Knubs or Husks and Waste	Cwts.	38,268
Silk, Raw	Lbs.	3,886,422
—— Thrown	,,	116,741
Skins:—		
Sheep and Lamb, Undressed	No.	5,174,567
—— Tanned, Tawed or Dressed	,,	4,228,344
Seal	,,	964,208
Goat, Undressed	,,	1,642,529
—— Tanned, Tawed or Dressed	,,	8,481,640
Spices:—		
Cinnamon	Lbs.	1,429,519
Pepper	,,	17,532,958
Of all other sorts	,,	17,911,298

Articles.		Quantity.
Spirits:—		
Rum	Pf. Gals.	6,946,657
Brandy	,,	5,024,668
Other Foreign and Colonial Spirits	,,	1,575,552
Total of Spirits	,,	13,546,877
Sugar, Refined and Sugar Candy	Cwts.	3,018,824
—— Raw	,,	17,734,223
—— Molasses	,,	761,389
Tallow and Stearine	,,	1,174,907
Tea	Lbs.	184,076,472
Teeth, Elephants', Sea-Cow, and Sea Horse	Cwts.	9,414
Tobacco, Manufactured, Cigars, and Snuff	Lbs.	3,591,558
—— Unmanufactured	,,	38,861,220
Wine	Gals.	15,162,857
Wood and Timber:—		
Hewn	Loads	1,384,115
Sawn or Split	,,	3,256,232
Staves	,,	84,942
Mahogany	Tons	45,154
Wool,—Sheep, Lamb, Alpaca, and the Llama Tribe	Lbs.	417,110,099
Woollen Rags	Tons	33,309
Woollen and Worsted Yarn:—		
Berlin Wool and Yarn used for Fancy Purposes	Lbs.	887,233
Yarn for Weaving	,,	10,022,139
Yeast, Dried	Cwts.	194,726

EXPORTS OF HOME PRODUCE FROM THE UNITED KINGDOM.—The following table shows the quantities of the chief articles of British and Irish produce and manufactures exported from the United Kingdom in the year ended the 31st of December, 1879:—

Principal Articles.		Quantity.
Alkali	Cwts.	6,337,611
Animals: Horses	No.	5,018
Arms and Ammunition:—		
Firearms (Small)	No.	273,140
Gunpowder	Lbs.	12,199,700
Bags, Empty	Dozs.	5,039,415
Beer and Ale	Brls.	412,392
Books, Printed	Cwts.	95,439
Butter	,,	36,677
Candles, of all sorts	Lbs.	4,790,800
Carriages, Railway	No.	1,607
Cement	Cwts.	4,437,000
Cheese	,,	14,231
Coals, Cinders, and Fuel	Tons	16,442,296
Cordage and Twine	Cwts.	124,304
Corn: Wheat	,,	696,358
—— Wheat Flour	,,	65,770
Cotton Yarn	Lbs.	235,625,500

Principal Articles.		Quantity.
Cotton Manufactures:—		
Piece Goods, White or Plain	Yds.	2,652,440,900
——— Printed, Checked, or Dyed	,,	1,057,726,500
———, of Mixed Materials	,,	14,481,400
Total of Piece Goods	,,	3,724,648,800
Stockings	Doz. Prs.	1,114,232
Thread for Sewing	Lbs.	11,704,200
Fish: Herrings	Brls.	637,072
Glass: Plate	Sq. Ft.	1,691,445
——— Flint	Cwts.	88,223
——— Common Bottles	,,	599,090
——— Of other Sorts	,,	109,334
Hats of all Sorts	Dozs.	779,493
Leather, Tanned, Unwrought	Cwts.	219,890
——— Wrought, Boots and Shoes	Doz. Prs.	433,374
——— of other Sorts	Lbs.	1,663,961
Linen and Jute Yarn:		
Linen Yarn	,,	17,428,800
Jute Yarn	,,	13,572,100
Linen and Jute Manufactures:—		
Linen Manufactures:		
White or Plain	Yds.	149,661,000
Printed, Checked, or Dyed	,,	6,559,700
Sailcloth and Sails	,,	4,089,900
Total of Piece Goods	,,	160,310,600
Thread for Sewing	Lbs.	2,829,000
Jute Manufactures	Yds.	164,054,600
Metals:—		
Iron, Old, for remanufacture	Tons	235,151
——— Pig, and Puddled	,,	1,223,436
——— Bar, Angle, Bolt, and Rod	,,	231,226
——— Railroad, of all Sorts	,,	463,878
——— Wire	,,	37,126
——— Hoops, Sheets, and Boiler Plates	,,	192,575
——— Tinned Plates	,,	196,997
——— Cast, wrought, and all other manufactures	,,	260,896
——— Steel, unwrought	,,	31,061
——— Manufactures of Steel, or of Steel and Iron combined	,,	11,138
Total of Iron and Steel	,,	2,883,484
Copper, Unwrought:—		
Ingots, Cakes or Slabs	Cwts.	335,196
Copper, Wrought or partly Wrought:—		
Mixed or Yellow Metal	Cwts.	334,641
Of other Sorts	,,	303,687
Brass of all Sorts	,,	79,161
Lead, Pig, Sheet, and Pipe	Tons	36,776
Tin, Unwrought	Cwts.	124,474
Zinc, Wrought and Unwrought	,,	113,467
Oil, Seed	Gals.	12,605,800
Paper (other than Hangings)	Cwts.	377,687
Salt	Tons	959,644
Silk Manufactures:—		
Broad Piece Goods	Yds.	4,724,010
Soap	Cwts.	383,910
Spirits, British	Gals.	1,692,495
Sugar, Refined	Cwts.	896,243
Wool, Sheep and Lambs'	Lbs.	15,703,900
Woollen and Worsted Yarn	,,	33,378,500
Woollen and Worsted Manufactures:—		
Cloths, Coatings, &c., Unmixed and Mixed	Yds.	46,258,900
Flannels, Blankets, Blanketing, and Baizes	,,	11,663,700
Worsted Stuffs, Unmixed and Mixed	,,	186,646,100
Carpets and Druggets	,,	6,686,000

Export Markets of the United Kingdom.—The following table, compiled from Returns of the Board of Trade, gives the declared value of the British and Irish produce exported from the United Kingdom to Foreign countries and British possessions in the year ended the 31st of December, 1879, first taking the exports to foreign countries:—

I. Foreign Countries.

Countries.	Value. £
Russia, Northern Ports	6,609,251
——— Southern Ports	1,035,378
Sweden and Norway	2,486,256
Denmark Proper and Iceland	1,647,967
——— Danish West Indies	200,248
Germany	18,591,545
Holland	9,353,151
——— Java, and other Possessions in the Indian Seas	1,643,416
Belgium	5,106,479
France	14,988,857
——— Algeria	225,572
——— Possessions in Senegambia	44,261
——— Possessions in India	22,760
Portugal	1,899,039
——— Azores and Madeira	111,318
Spain	2,940,188
——— Canary Islands	173,545
——— Fernando Po	7,689

Countries.	Value. £
Spain, West India Islands	1,771,528
—— Philippine Islands	599,024
Italy	4,983,676
Austrian Territories	799,085
Greece	944,336
Turkey	7,208,240
—— Wallachia and Moldavia	997,078
Egypt	2,143,681
Morocco	245,037
United States	20,321,990
Mexico	693,123
Central America	722,628
Haiti and San Domingo	151,000
New Granada (United States of Columbia)	882,190
Venezuela	462,037
Ecuador	281,985
Brazil	5,685,054
Uruguay	922.625
Argentine Republic	2,063,254
Chili	950,286
Peru	747,427
China (exclusive of Hong Kong)	4,649,978
Japan	2,638,002
Western Coast of Africa	656,902
Other Countries	1,922,561
Total to Foreign Countries	130,529,647

II. British Possessions.

Channel Islands	598,835
Gibraltar	677,687
Malta	768,558
North American Colonies:—	
British Columbia, Hudson's Bay Co. Settlements, Canada, New Brunswick, Nova Scotia, Prince Edward Island	5,040,524
Newfoundland	404,606
Total to North American Colonies	5,445,130
West India Islands and Guiana	2,718,924
British Honduras	91,402
Australia:—	
West Australia	172,245
South Australia	2,207,450
Victoria	4,506,934
New South Wales	4,874,003
Queensland	694,840
Tasmania	265,238
New Zealand	3,550,026
Fiji Islands	—
Total to Australia	16,270,736

Countries.	Value. £
British India	21,374,404
The Straits Settlements	2,029,018
Ceylon	780,918
Hong Kong	2,947,984
Mauritius	341,257
Cape of Good Hope and Natal	5,853,037
Sierra Leone	313,880
Possessions on the Gold Coast	430,280
Other Possessions	360,061
Total to British Possessions	61,002,111
Total to Foreign Countries and British Possessions	£191,531,758

Value of Imports.—The total value of imports in the year 1879 was 362,991,000*l*., against 368,770,000*l*. in the year 1878, being a decrease of 5,779,000*l*., or 1·5 per cent. After a great increase in the total value in the year 1877, when the amount reached 394,419,000*l*., the highest on record, it fell to 368,770,000*l*. in 1878, so that the figures given for the year 1879 represent a very considerable decrease upon the diminished value of the previous year, and comparing the results of the two years 1877 and 1879, there is a diminution of 31 millions, or 8 per cent.

Value of Exports.—The total value of the exports of British and Irish produce and manufacture in the year 1879 differed but little from that of the preceding year, the figures being for 1878, 192,848,914*l*., and for 1879, 191,531,758*l*., resulting in a slight decrease of 1,317,156*l*., or ¾ per cent. only. There was an increase of about 3,920,000*l*. in the value of the exports to foreign countries collectively, and a decrease of about 5,230,000*l*. in that of the goods sent to our colonies and dependencies, as shown in the following table of the value of British goods exported:—

Year.	Foreign Countries.	British Possessions.	Total.
	£	£	£
1878.	126,611,428	66,237,486	192,848,914
1879.	130,529,647	61,002,111	191,531,758

The increase occurred chiefly in our exports to the United States, which rose from 14,552,076*l*. in 1878 to 20,321,990*l*. in 1879, or 39·6 per cent.

3. TRADE AND AGRICULTURE.

WINE.—There was in 1879 again a diminished consumption of wine, viz., from 16,271,000 to 14,900,000 gallons, or 8·4 per cent., and pursuing the comparison with the year 1876, from which period the consumption of both wines and spirits began to decline, the following figures indicate the diminishing rate, viz.:—

	Gallons.	Decrease.	Decrease per cent.
1876	18,671,000	—	—
1877	17,671,000	1,000,000	5·3
1878	16,271,000	1,400,000	7·9
1879	14,900,000	1,371,000	8·4

Taking the first and last of these years, the consumption fell off by 3,771,000 gallons, or 20 per cent. The following table gives the decrease in each of the three principal classes of wine within the same limits of time, viz.:—

	1876.	1879.	Decrease.	Decrease per cent.
French .. .. gallons	6,755,000	5,620,000	1,135,000	16
Spanish .. ,,	6,461,000	5,022,000	1,439,000	22
Portuguese .. ,,	3,725,000	2,831,000	894,000	24

TOBACCO.—The consumption of tobacco diminished in 1879; the unmanufactured or leaf tobacco by 654,000 lbs. and the manufactured by 152,000 lbs. The net loss of 153,000*l*. on the manufactured articles as divided into the two general heads of cigars and "other sorts" is accounted for in the following manner, viz.:—

	1878.	1879.	Decrease.	Increase.
Cigars .. .. lbs.	1,284,000	1,126,000	158,000	—
Other sorts of manufactured tobaccos . } ,,	120,000	125,000	—	5,000

The net revenue derived from tobacco in the year 1879 was 8,522,000*l*., and the amount of drawback paid 71 000*l*.

CHICORY AND COFFEE.—The consumption of these articles in the United Kingdom increased from 393,000 cwts. in 1878 to 414,000 cwts. in 1879, or 5·3 per cent. The larger increase was in chicory, which was consumed to a greater extent than in 1878 by 10·5 per cent., while the consumption of coffee only increased by 3·6 per cent.

COCOA.—The home consumption of cocoa increased from 9,980,000 in 1878 to 10,111,000 lbs. in 1879, or 1·3 per cent.

TEA.—The consumption of tea in 1879 was slightly in excess of that of the year 1878, being 160,652,000 against 157,691,000 lbs., or 1·8 per cent. The increase is very small as compared with that of 1878, when the quantity consumed was 6,416,000 lbs., or 4·2 per cent. larger than that consumed in 1877. There is but one other instance during the last ten years in which the rate of increase in the consumption of tea has been so low, viz., that of the year 1877, when the gain was only 1·4 per cent. upon the consumption of the year preceding.

SPIRITS.—The consumption in 1879, of unsweetened spirits, viz., brandy, rum, Geneva, and other kinds of plain spirits (chiefly German), show a very marked decline upon the consumption of the previous year, the quantity having fallen from 10,502,000 to 9,539,000 gallons, or 9·1 per cent. This comes after a decrease of 2·3 per cent. on a comparison of the quantities consumed in 1878 with those of 1877, and of 7 per cent. in 1877 as compared with 1876, so that the total diminution since the

year 1876 is no less than 1,963,000 gallons, or 17 per cent., representing in duties a loss of 1,014,000*l.*

JOINT STOCK COMPANIES.—The following table, showing the number of companies registered in the United Kingdom during the last 15 years, exhibits the immediate effect of the financial panic of 1866, then the gradual improvement which followed with the returning confidence of the public as the effects of that memorable disaster passed away, and then the diminution which has taken place since 1875, during which time commercial depression has again been severely felt:—

1864	997	companies.
1865	1,034	,,
1866	768	,,
1867	479	,,
1868	461	,,
1869	475	,,
1870	595	,,
1871	821	,,
1872	1,116	,,
1873	1,234	,,
1874	1,241	,,
1875	1,172	,,
1876	1,066	,,
1877	988	,,
1878	883	,,

From these figures it will be seen that notwithstanding the great decrease which has lately been taking place, there is still a large number of companies being formed. Many of these, however, are not of such a character as to bring them under the notice of the investing public, as for example, coffee taverns, the social movement in favour of which has led to the registration of no less than 89 companies in England alone during the year. The other companies incorporated during the twelvemonth have been of the usual miscellaneous kind, but among them, several having for their object the development of the resources of the island of Cyprus, and others for working the new scientific inventions of the electric light and the telephone, are worthy of notice.

IMPORTS OF WHEAT.—In the twelve months ending August 31, 1880, the import of wheat into the United Kingdom reached 59,814,691 cwt., equal to 13,803,621 qrs., and when we add to this the import of wheat flour, which amounted to 10,431,726 cwt., or 2,980,493 qrs., we find that we have received from abroad no fewer than 70,247,417 cwt., or 16,784,114 qrs., of wheat and wheat flour. In the twelvemonth ending August 31, 1878, the amount was 62,255,125 cwt., or 14,808,966 qrs., and in the twelvemonth ending August 31, 1879, it was 60,849,823 cwt., or 14,543,607 qrs. Our other imports of corn in the twelve months ending August 31, 1880, comprised 31,870,895 cwt., or 7,436,542 qrs., of Indian corn or maize; 13,382,665 cwt., or 3,467,147 qrs., of barley; the very large quantity of 15,692,912 cwt., or 5,681,059 qrs., of oats; 2,002,772 cwt., or 445,061 qrs., of peas; and 2,754,518 cwt., or 642,721 qrs., of beans. The grand totals are as follows:—In 1877–78 the twelvemonth's import thus classed under the title of "corn" amounted to 134,430,348 cwt., or 33,858,689 qrs.; in 1878–79 it was 124,866,538 cwt., or 31,510,900 qrs.; and in 1879–80 it reached 134,881,180 cwt., or 34,456,644 qrs. In the last of these three periods, compared with the first of the three, the increase in wheat and oats was nearly counterbalanced by a large decrease in Indian corn and in barley, so that the grand totals show no very great difference.

ORCHARDS AND WOODS.—Orchards in Great Britain again show a satisfactory increase, their acreage being returned for 1880 as 180,000 acres, against 175,000 in 1879, and 165,000 in 1878. Market gardens have also increased from 41,000 acres to 44,000 acres, and the collectors report both with regard to orchards and market gardens that there is a growing demand for fruit and vegetables, especially in the neighbourhood of towns. The uncertainty of the climate for fruit growing must always, however, tend to restrict the extension of fruit plantations, except in naturally favoured districts. A special return of the acreage of woods and plantations has been obtained for 1880, the last return of this nature having been made in 1872. Since that date the acreage appears to have increased from 2,187,000 acres to 2,409,000 acres, or nearly 10 per cent.

LIVE STOCK.—In the various kinds of live stock, there appears to be a slight decline in agricultural horses in 1880, caused, it is stated, by the number of unlet farms, and also a decrease in brood mares and young horses, for which the demand has not been so great recently. Moreover, the stock of horses had increased up to last year, when the numbers were larger than in any year since 1870. The imports of horses from abroad were 26,000 in 1878, 15,000 in 1879, and only 6,600 in the first eight months of the present year. As regards horned cattle, milch cows have decreased less than 1 per cent., but other cattle show an increase of nearly 2 per cent., so that the total number of horned cattle in Great Britain is this year 5,912,000 as compared with 5,856,000 in 1879. Sheep in the country have suffered an important decline of nearly a million, chiefly owing, the collectors state, to the losses by disease, and lambs have also decreased more than half a million, partly, it is stated, from the weak condition of the ewes. The stock of sheep and lambs is now only 26,619,000—which appears to be a very insufficient number considering the additional permanent pastures of late years. Mr. Giffen, whose figures we have quoted,

remarks that these great losses in sheep and lambs have occurred only in England and Wales, the counties of Scotland, with few exceptions, showing a small increase in sheep and a considerable one in lambs, while the northern border counties of England have also escaped in great measure. Pigs have further decreased by 91,000 since 1879, and by 483,000 since 1878, the competition of American bacon being stated to make pig-keeping less profitable than formerly, while, as before mentioned, the sanitary regulations in populous places tend also to diminish their numbers.

WHEAT CROPS.—The area under wheat in 1880 in Great Britain was 2,909,000 acres, or 19,000 acres more than in the previous year. The wheat area of 1879 was, however, the lowest on record since the returns were first obtained in 1867, and the present year's crop was grown on nearly 591,000 acres less than in 1870. In some counties it is stated by the collecting officers that a favourable autumn led to an increased breadth of wheat being sown, but the large number of unlet farms, and of farms where agricultural depression prevailed, appears to have caused much wheat land to be left in fallow. In barley there is a considerable decrease since 1879, when 2,667,000 acres were sown, as compared with only 2,467,000 acres in the present year. The inferior quality and the difficulty of securing the crop last year are stated by the officers in some places as having caused this decrease, but it may be noted that the present year's acreage under barley is fully equal to the average of the last ten years.

OATS.—Oats were sown on 2,797,000 acres in Great Britain in 1880, or an increase of 5 per cent. over the area in 1879, and these figures have only once been reached since 1867; but the other stock-feeding corn crops show a considerable falling-off, beans being grown on 427,000 acres, as compared with 530,000 acres in 1870, and peas on 234,000 acres, against 317,000 in 1870. The imports of maize, which compete largely with these crops, have somewhat declined during the past year, but are still more than double those of ten years ago. Taking, then, all the figures as to the corn crops in Great Britain, we find their area was 8,876,000 acres, or a decrease of rather more than 1 per cent. from the previous year, and of 7 per cent. from the year 1870.

GREEN CROPS.—As regards the green crops in Great Britain there is an increase of 10,000 acres planted with potatoes in 1880 as compared with 1879, and the area, 551,000 acres, is nearly equal to the figures of ten years ago. Turnips and Swedes were returned as grown on 2,024,000 acres, a small increase upon 1879, but mangolds show a decrease of nearly 6 per cent. from last year; cabbage, kohl rabi, &c., of 4 per cent.; and vetches, lucerne, and other green crops, of more than 15 per cent., the acreage this year being only 380,000, making the total area under green crops 3,477,000 acres, or 2 per cent. less than in 1879. Green crops on the whole have shown little change during the last ten years, but the present year's figures are less than in any year since 1868. Flax has increased somewhat from the average of the last five years, but the area, 9,000 acres, is still less than half the acreage grown ten years ago. Hops were planted on 67,000 acres—about the same area as in 1879.

IRISH CROPS AND LIVE STOCK.—In the figures of the crops and live stock in Ireland, we find that the changes are of much the same nature as those in the returns for Great Britain. The cultivated area is slightly larger than in the last two years, being this year 15,358,000 acres as against 15,336,000 acres in 1879, and 13,345,000 acres in 1878. It is true that before 1877 the cultivated area averaged 400,000 acres more than these figures, but the apparent decline was caused by a separate heading being made in the return for 1877 for "barren mountain land," some of which had often in previous years been included under the head of "grass" in consequence of having some live stock on it when the returns were collected. As regards corn crops in Ireland, there is little change to notice from 1879, the increase in the acreage of oats counter-balancing the decrease in wheat and barley. There has, however, been a considerable decline in the area of corn crops since 1870, when they covered 2,173,000 acres as compared with 1,766,000 at the present time. Coming to green crops, we notice a further general decline in the acreage of almost all the crops. Potatoes were planted in 821,000 acres against 843,000 acres in 1879 and 1,044,000 acres in 1870. Turnips occupied 303,000 acres against 315,000 acres last year, and the total acreage of green crops amounts to less than a million and a quarter, as compared with a million and a-half ten years ago. Flax was grown on 157,000 acres, or 24 per cent. more than in 1879. Rotation grasses show a small decline and permanent grasses an increase—the area now amounting to 10,261,000 acres. As regards live stock, there is a decrease in every description from 1879, but as regards horses and cattle the numbers are still fully equal to those of ten years ago. In sheep, however, the decrease of nearly half a million from last year leaves the number little over three and a-half millions; and pigs, too, are less by 20 per cent., there being now only 849,000 against 1,072,000 in 1879 and 1,459,000 in 1870.

AVERAGE GAZETTE PRICES OF BRITISH WHEAT,

MONTHS.	1865.	1866.	1867.	1868.	1869.	1870.	1871.
	WHEAT						
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
January ..	38 6	45 10	61 4	70 3	51 9	43 8	52 8
February ..	38 3	45 6	60 10	73 0	50 4	41 3	53 6
March ..	38 4	45 3	59 9	73 0	48 1	41 5	54 1
April	39 6	44 10	61 6	73 3	46 4	42 7	57 8
May	41 0	46 2	64 8	73 9	44 9	44 6	59 0
June	41 5	48 3	65 4	67 11	45 11	47 5	59 9
July	42 7	54 1	65 0	65 5	49 10	50 10	58 8
August ..	43 3	50 6	67 8	57 7	52 8	53 10	57 10
September ..	44 0	48 11	62 8	54 7	50 8	47 3	57 0
October ..	41 10	52 4	66 6	53 8	47 4	47 0	56 5
November ..	45 7	56 6	69 5	51 8	46 6	50 1	56 2
December ..	46 7	60 3	67 4	49 11	43 9	52 4	56 2
The Year ..	41 10	49 11	64 5	63 9	48 2	46 10	56 8
	BARLEY						
January ..	28 5	32 9	44 3	41 10	48 6	35 11	35 3
February ..	29 1	33 8	44 4	42 6	47 2	34 5	35 7
March	28 10	35 11	41 0	43 3	45 0	34 0	35 11
April	29 7	36 10	39 6	43 11	44 1	34 7	36 8
May	29 6	36 3	38 10	43 8	39 5	33 3	37 2
June	28 1	35 1	36 2	40 3	34 9	32 8	37 0
July	27 11	34 5	35 2	37 5	31 11	31 7	35 3
August ..	28 3	34 1	37 3	41 1	32 4	33 8	35 2
September ..	30 8	37 2	39 11	43 8	37 6	36 1	35 5
October ..	30 9	42 0	41 3	45 6	38 1	36 7	36 6
November ..	32 10	44 10	42 2	46 10	38 5	36 7	37 0
December ..	33 0	45 2	40 11	45 10	36 3	35 4	36 10
The Year ..	29 9	37 5	40 0	43 0	39 5	34 7	36 2
	OATS						
January ..	19 2	23 0	24 0	25 7	26 6	20 8	22 11
February ..	19 7	23 4	24 3	26 1	27 10	20 2	23 11
March ..	20 9	23 10	24 7	27 1	27 7	20 11	25 2
April	22 0	24 5	24 9	28 0	26 10	21 2	27 0
May	23 1	25 1	26 0	28 10	26 11	23 0	27 2
June	23 2	25 11	27 5	29 10	27 4	23 9	27 0
July	23 1	27 1	28 0	30 4	26 10	26 1	27 6
August ..	23 10	26 2	28 8	29 9	27 2	26 9	26 11
September ..	21 8	24 8	26 11	28 0	25 10	23 5	24 10
October ..	20 10	22 11	25 8	27 8	24 1	22 3	23 2
November ..	22 3	23 6	25 11	28 0	23 4	23 5	23 5
December ..	22 10	24 10	25 2	27 8	22 2	23 4	23 0
The Year ..	21 10	24 7	26 0	28 1	26 0	22 11	25 2

BARLEY, and OATS, per IMPERIAL QUARTER in EACH MONTH FROM 1865 TO 1879.

1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
.. ..	WHEAT.						
s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
55 4	55 9	62 7	44 1	44 9	51 7	51 11	39 3
55 8	56 4	62 11	41 8	43 1	51 7	51 4	38 0
55 1	55 6	60 11	41 6	43 0	51 1	49 7	39 7
54 2	54 10	60 0	43 0	44 11	53 4	51 3	41 0
56 3	56 0	62 2	42 3	45 1	65 10	51 11	41 0
58 11	58 7	61 0	42 3	47 5	64 6	48 0	41 9
58 6	59 6	60 8	46 5	48 3	62 9	44 11	44 6
59 8	60 6	57 6	52 10	46 0	64 11	44 9	49 1
58 4	64 2	47 7	48 4	46 8	59 1	43 8	47 6
58 6	60 10	44 6	46 4	46 6	53 7	39 7	48 10
56 10	60 9	43 9	47 2	47 11	52 3	40 4	48 9
56 6	61 8	44 9	46 3	49 9	51 6	40 3	46 7
57 0	58 8	55 8	45 2	46 2	56 9	46 5	43 11
.. ..	BARLEY.						
37 1	40 1	45 8	44 11	34 5	39 3	43 11	37 6
38 6	40 4	48 11	43 10	33 5	40 4	44 2	35 8
37 4	39 10	48 4	42 0	32 8	40 9	42 5	33 10
36 3	39 1	48 11	40 10	33 10	40 11	41 11	31 8
36 2	38 4	46 11	38 5	34 1	39 11	39 10	29 8
34 7	37 2	42 9	35 10	32 11	35 7	36 11	27 2
32 5	36 6	40 9	34 6	32 9	35 4	37 5	26 4
33 2	37 7	44 6	35 0	32 2	34 1	36 0	29 5
37 4	43 11	42 10	35 5	37 8	40 2	41 7	38 8
42 1	43 9	42 8	37 0	39 4	43 1	40 4	40 9
42 8	44 0	42 7	37 11	39 3	43 3	39 8	40 1
41 6	44 9	44 2	35 4	38 9	43 8	38 11	38 4
37 5	40 5	44 11	38 5	35 2	39 8	40 2	34 0
.. ..	OATS.						
22 6	22 2	26 11	29 5	24 2	24 9	23 11	20 0
22 9	21 11	28 7	29 8	24 5	25 4	24 3	19 9
22 8	23 3	28 7	29 11	25 1	25 6	24 0	20 6
22 3	23 10	28 5	29 10	25 8	25 2	25 4	20 10
23 5	25 4	29 7	30 3	26 7	27 10	26 0	21 11
23 4	26 7	30 4	31 6	28 1	27 1	26 2	22 4
24 4	28 9	30 4	30 1	29 10	28 1	27 6	22 11
25 1	28 7	30 10	30 8	29 0	28 0	26 2	23 9
23 0	27 7	28 1	28 3	26 7	26 9	24 0	24 9
22 11	25 3	27 7	24 10	25 3	23 10	22 0	22 6
22 9	25 4	28 0	25 6	25 7	24 5	21 10	21 5
22 10	26 1	29 1	24 6	25 1	24 0	21 0	21 1
23 2	25 5	28 10	28 8	26 3	25 11	24 4	21 10

4. POPULATION, PUBLIC EMPLOYMENT, AND VITAL STATISTICS.

Mortality in England and Wales 1838-77.—A Parliamentary return gives particulars as to the mortality in England and Wales during certain periods from 1838 to 1877. From these statistics it appears that from 1838 to 1853 the average annual death-rate (all ages and causes) per million of population was 22,386; from 1838 to 1853, excluding 1846 to 1849—the cholera period—21,840; from 1854 to 1877, 22.141; and from 1868 to 1877, 21,847. In 1847 the number of deaths of children under one year was, from all causes, 164,425 per million, and of children from one to five years of age, 166,354; while in 1877 the total under one year was 136,025, and between one and five, 151,364. From 1847 to 1853 inclusive the proportion of deaths of all ages from smallpox was 305 per million; and from 1868 to 1877 inclusive it was only 261. A note appended to the latter returns explains that during the 12 years, 1838-42 and 1847-53 (the only years prior to compulsory vaccination for which these mortality statistics are available), the average annual death-rate from smallpox was equal to 420 per million persons living; whereas in the 25 years (1853-78) of compulsory vaccination the annual death-rate from this disease has not averaged more than 216 per million, notwithstanding the exceptionally fatal epidemic of 1871-72.

Births, Marriages, and Deaths.—The following table shows the total number of births, deaths, and marriages in England and Wales, and Scotland, from 1861 to 1879, and Ireland, from 1867 to 1879:—

England and Wales.

Years.	Births.	Deaths.	Marriages.
1861	696,406	435,114	163,706
1862	712,684	436,573	163,830
1863	727,417	473,837	173,510
1864	740,275	495,531	180,387
1865	748,069	490,909	185,474
1866	753,870	500,689	187,776
1867	768,349	471,073	179,154
1868	786,808	480,622	176,962
1869	773,381	494,828	176,970
1870	792,787	515,329	181,655
1871	797,428	514,879	190,112
1872	825,907	492,265	201,267
1873	829,778	492,520	205,615
1874	854,956	526,632	201,010
1875	850,607	546,453	201,212
1876	887,968	510,315	201,874
1877	888,200	500,496	194,352
1878	891,418	539,574	189,657
1879	882,866	528,194	181,719

Scotland.

1861	107,036	62,287	20,828
1862	107,138	67,159	20,544
1863	109,325	71,421	22,087
1864	112,445	74,303	22,675
1865	113,126	70,821	23,577
1866	113,639	71,273	23,629
1867	114,115	69,024	22,521
1868	115,673	69,386	21,853
1869	113,395	75,789	22,083
1870	115,423	74,067	23,788
1871	116,127	74,644	23,966
1872	118,873	75,741	25,580
1873	119,738	76,857	26,730
1874	123,795	80,676	26,247
1875	123,693	81,785	25,921
1876	126,749	74,122	26,503
1877	126,824	73,946	25,790
1878	126,707	76,775	24,333
1879	125,736	73,329	23,462

Ireland.*

1867	144,318	93,911	29,796
1868	146,108	86,803	27,753
1869	145,659	89,573	27,277
1870	150,151	90,695	28,835
1871	151,665	88,720	28,960
1872	149,292	97,577	27,114
1873	144,592	97,840	26,566
1874	144,411	92,352	25,201
1875	138,382	98,243	24,259
1876	140,438	92,499	26,503
1877	139,498	93,509	25,078
1878	134,370	99,839	25,363
1879	135,408	105,432	23,313

* Owing to the defective state of the Registration, the figures for births, deaths, and marriages in Ireland are only an approximation to the real numbers.

Lunacy.—The 34th report of the Commissioners in Lunacy, dated March 31, 1880, shows that the number of lunatics, idiots, and persons of unsound mind in England and Wales on the 1st January, 1880, was 71,191, being an increase of 1,306 above the total registered number for January 1, 1879. Of those patients 7,620 were in private and 63,571 in pauper asylums; and 32,164 were males and 39,027 females. These numbers do not include 208 lunatics so found by inquisition who are residing in the immediate charge of their committees. The tables show a steady advance in the total number of persons registered as of unsound mind, though the increase is no doubt in a great measure accounted for by the various alterations in the law which has tended

to promote the removal of the insane poor to asylums, and by the greater opposition to the granting of out-door relief shown by guardians of late years. Thus the total in 1859 was only 36,762, and the proportion of lunatics to population has increased from 18·67 per 10,000 in that year to 27·94 per 10,000 in 1880. Excluding the various idiot asylums as not receiving curable cases, and eliminating the "transfers," the total recoveries of the year 1879 as compared with the admissions gives the percentages of 37·25 for the males, and 43·54 for the females, or 40·50 for both sexes; the deaths of the year as compared with the average daily number resident and excluding the idiot establishments, were in the ratio of 12·55 for the males and 8·93 for the females, or 10·60 for both sexes. Calculated on the total number under treatment (and still excluding the idiot establishments), the deaths were in the proportion of 9·50 per cent. for the males, and 7 per cent. for the females, or 8·17 per cent. for both sexes. These figures differ but very slightly from those of the average of the last 10 years. The county and borough asylums in England and Wales are now 60 in number, an addition of one having occurred by the opening in October last of the Portsmouth Borough Asylum.

THE HEALTH OF THE ARMY.—The report of the health of the British Army for the year 1878 (last return issued) shows that although the number of admissions to hospitals in the United Kingdom were 4·9 per 1,000 above 1877, the death-rate was considerably lower. The Home District, the headquarters of which are at London, shows the largest number of cases of sickness; and the North British District, which comprises the whole of Scotland, shows the largest number of deaths. The South-Eastern District (headquarters Dover) and the Channel Islands are by far the healthiest of the Home Stations. The average mortality of all ranks at home in 1878 was 6·53 per 1,000, varying from 7·78 in Scotland to 4·05 in Jersey. Of the foreign stations, Canada is the healthiest; then come Bermuda and Gibraltar. Malta, the Mauritius, and the West Indies all show a very high death-rate; but on the West Coast of Africa, usually the most unhealthy station, there is a considerable reduction in the bills of mortality. China and Ceylon, although showing a high death-rate, are improving, but in India the rate of deaths per 1,000 went up as high as 9·63. The Cape and Cyprus are both very high; but hostilities were proceeding at the former station, and at the latter fever was very prevalent. The death-rate is highest in the Royal Artillery, which shows an annual loss of 7·19 men per 1,000. Then come the Infantry of the Line with 6·31, the Royal Engineers with 6·27, the Guards 6·16, Cavalry 5·15, and Household Cavalry, 3·22.

AGES OF THE JUDGES.—The "Law Times" gives the following table of the ages and length of service of the English judges who were in office at the time when the "Companion" went to press :—

	Raised to the Bench.	Present Age.
Bacon, Vice-Chancellor	July, 1870	82
Baggallay, Lord Justice	Nov., 1875	64
Bowen, Justice.....	June, 1879	45
Bramwell, Lord Justice	Nov., 1856	72
Brett, Lord Justice....	Aug., 1868	63
Cockburn, Ld. Ch. Just.	Nov., 1856	78
Coleridge, Ld. Ch. Just.	Nov., 1873	59
Cotton, Lord Justice ..	June, 1877	59
Denman, Justice.....	Oct., 1872	61
Field, Justice.....	Feb., 1875	67
Fry, Justice.....	May, 1877	53
Grove, Justice.....	Nov., 1871	69
Hall, Vice-Chancellor..	Nov., 1873	66
Hannen, Justice	Feb., 1868	59
Hawkins, Justice.....	Nov., 1876	63
Huddleston, Baron....	Feb., 1875	63
James, Lord Justice...	Jan., 1869	73
Jessel, Master of Rolls.	Aug., 1873	56
Lindley, Justice	May, 1872	52
Lopes, Justice	Nov., 1876	53
Lush, Justice	Nov., 1865	73
Malins, Vice-Chancellor	Nov., 1866	75
Manisty, Justice	Nov., 1876	72
Phillimore, Sir R.....	July, 1867	70
Pollock, Baron	Jan., 1873	57
Stephen, Justice	Jan., 1879	51

CIVIL SERVICE COMMISSION.—The 24th report of the Civil Service Commissioners shows that the total number of cases dealt with in 1829 was 17,947, as compared with 17,055 in 1878. Of these, 13,171 were home Civil Service cases, of whom 4,755 were passed and certificated, as compared with 11,875 home Civil Service cases in 1878, of whom 4,609 were passed and certificated. At the competition for the Indian Civil Service, held in June and July, 1879, open to candidates between 17 and 19, there were 181 competitors for 28 vacancies. At the competition for admission to the Royal Indian Engineering College, in July, 1879, there were 66 candidates for 35 vacancies, as compared with 108 candidates for 34 vacancies in 1878. There were, in 1879, 3,325 candidates for the military services, of whom 549 obtained appointments, as compared with 3,013 candidates and 457 appointments in 1878. Last year the Commission for the first time held an examination for certain departments of the naval services, with the result that 33 competitors appeared for assistant clerkships, of whom 15 were selected, and three for interpreterships, all of whom were found qualified. There are various appendices to the report.

5. CRIME, PAUPERISM, AND ACCIDENTS.

CRIME IN LONDON IN 1879.—The Metropolitan Police Criminal Returns for 1879 show a decrease in the number of persons taken into custody as compared with the previous year. In the previous year 83,746 persons were apprehended, or considerably more than in any year throughout the half-century during which the Metropolitan Police Force has been in existence. The number of arrests fell in 1879 to 81,385; but, while this shows a reduction of 2,361 compared with 1878, it exceeds the average of the previous ten years by nearly 7,000. The more serious crimes also continue to increase. The offences affecting property committed in the Metropolis during 1879 numbered 21,891. This certainly shows only a slight advance of 99 offences over the number committed in 1878; but it is 4,798, or 28 per cent., in excess of the number five years ago. A considerable number of the offences against property, such as embezzlements, forgeries, frauds, and the like, could not, of course, have been prevented by the police; but if these are deducted, the result of a comparison between the statistics for 1875 and 1879 is still more unfavourable as regards the latter year. In 1875 the number of crimes affecting property—preventable by the police—was 10,091; while in 1879 it was 14,393, an increase of 4,302, or not far short of 43 per cent. If the return of offences against property is analyzed, it appears that the burglaries, including breaking into dwelling-houses and shops, numbered 1,205. Compared with the previous year, this shows a reduction of 774 offences, or 39 per cent.; and as regards the year 1877 of 139 offences, or 10 per cent. While, however, it is satisfactory to find that the excessive number of burglaries recorded in 1877 and 1878 was not maintained during 1879, the burglaries committed in the latter year were, nevertheless, considerably more than twice as many as those committed in 1875, and nearly three times as many as those committed in 1873. Thus, although last year's returns are more favourable than those for the two previous years, there is still a most serious decline in the protection afforded by the police as compared with that of earlier years. The same remark holds good with regard to the detection of crime. Ten years ago the number of arrests made in respect of burglaries was equal to 42 per cent. of the number of those offences, while the convictions were about 30 per cent. This rate, with slight variations, was maintained up to the year 1876. In 1877—the year of the detective scandal in connection with the turf frauds—the proportion fell to 20·7 per cent. in the case of apprehensions and to 13·9 per cent. in that of the convictions; while in the following year the arrests only numbered 12·6 per cent., and the convictions 10 per cent. of the offences. Last year the proportions of apprehensions and convictions to the number of burglaries committed rose to 24 and 17·5 per cent. respectively; but this is very far below the results obtained before 1877. The value of property lost and not recovered by the police during 1879 was 79,921*l*. This shows a very great reduction as compared with the property lost in the two previous years; the difference as regards 1878 being 57,577*l*., and as regards 1877 17,563*l*. It is a curious fact that during the last ten years, although the value of property lost has varied from about 77,000*l*. to 157,000*l*., the amount recovered each year by the police has never been more than 22,000*l*. or much less than 19,000*l*. A great portion, however, of these losses arose from frauds and forgeries which the police were powerless to prevent. If the losses arising from burglaries alone are separated from the total, it appears that the value of property stolen in 1879 was nearly treble that lost in 1875; although it was considerably less than the losses sustained in 1877 and 1878. Thus the burglars obtained property to the value of 4,400*l*. in 1875, of 19,600*l*. in 1877, of 21,200*l*. in 1878, and of 11,750*l*. in 1879. Although last year's statistics of crime in the Metropolis are far more favourable than those for the two previous years, they yet indicate a serious falling off in the protection afforded by the police as compared with what it was a few years since.

FIRES IN LONDON.—The Chief Office of the Metropolitan Fire Brigade reports that the value of property destroyed in 1879 in London was less than in any previous year since the formation of the brigade. Captain Shaw reported to the following effect:—The number of calls for fire, or supposed fires, received during the year has been 1,949. Of these 116 were false alarms, 115 proved to be only chimney alarms and 1,718 were calls for fire, of which 159 resulted in serious damage and 1,559 in slight damage. The fires in 1879, compared with those in 1878, show an increase of 59; and, compared with the average of the last ten years, there is an increase of 85. The proportion of serious to slight losses, 159 to 1,559, is most favourable; and notwithstanding several exceptional periods, as, for instance, the year 1872, I think I am justified in saying that the value of property destroyed by fire in London has been less in 1879 than in any other year since the formation of the brigade. The number of fires in the metropolis in which life has

been seriously endangered during the year 1879 has been 96; and the number of those in which life had been lost has been 27. The number seriously endangered by fire has been 164: of whom 132 were saved and 32 lost their lives. Of the 32 lost 15 were taken out alive, but died afterwards in hospitals or elsewhere, and 17 were suffocated or burnt to death. The number of calls for chimneys has been 4,169. Of these 1,375 proved to be false alarms, and 2,794 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with hand-pumps. The number of journeys made by the fire engines of the 52 land stations has been 22,184, and the total distance run has been 50,491 miles. The quantity of water used for extinguishing fires in the metropolis during the year has been 16,122,128 gallons —in round numbers a little more than 16,000,000 gallons—or about 72,000 tons. Of this quantity about 32,000 tons, or a little more than two-fifths of the whole, were taken from the river, canals, and docks; and the remainder from the street pipes. During the year there have been 9 cases of short supply of water, 33 of late attendance of turncocks, and 18 of no attendance, making together 60 cases in which the water arrangements were unsatisfactory. The strength of the fire brigade at present is as follows:—52 land fire-engine stations, 1 moveable land station, 113 fire-escape stations, 4 floating stations, 3 large land steam fire-engines, 34 small land steam fire-engines, 12 seven-inch manual fire-engines, 64 six-inch manual fire-engines, 37 under six-inch manual fire-engines, 130 fire-escapes and long scaling-ladders, 3 floating steam fire-engines, 1 steam tug, 17 hose carts, 15 vans, 3 barges, 57 telegraph lines, 106 miles of telegraph wires, 452 firemen, including chief officer, superintendents, and all ranks. The number of firemen employed on the several watches kept up throughout the metropolis is at present 104 by day, and 188 by night, making a total of 292 in every 24 hours; the remaining men are available for general work at fires. Our list of wounds and other injuries for 1879 is unfortunately very large, but this will always be the case as long as the men work with zeal and energy. There have been during the year 297 cases of ordinary illness and 69 injuries, making a total of 366 cases, of which many were very serious. The condition of the brigade with regard to discipline and general efficiency is in all respects perfectly satisfactory.

Ships Lost, 1873–1880.—A Blue Book gives a list of British ships which have been reported to the Board of Trade as having foundered or as missing between the 1st of January, 1873, and the 16th of May, 1880, together with summaries showing the number and tonnage of the ships lost in each year, the trades in which they were engaged, the description of cargo with which they were laden, and the number of lives lost. The grain-laden vessels lost within this period were 256, with a tonnage of 132,536, and the lives lost were 2,443. Of coal-laden vessels 534 were lost, tonnage 196,974, and 2,779 lives. Of vessels laden with metals and metallic ores, 124 were lost, tonnage 33,808, with a sacrifice of 369 lives. Of timber-laden ships 178 were lost, tonnage 84,290, and 675 lives. Of vessels laden with other cargoes 518 were lost, tonnage 141,661, with a loss of 1,855 lives. Under the head of "General," the number of vessels lost was 162, with a tonnage of 85,025, and 2,106 lives. Of vessels in ballast 183 have been lost, tonnage 51,669, and 496 lives. The unknown are 10 in number, tonnage 3,231, and 104 lives. The total number of vessels lost was 1,965, tonnage 729,194, and no fewer than 10,827 lives.

English Pauperism.—The returns of the cost of in-maintenance and out-door relief in England for the half-year ended Lady-day, 1880, summarise the figures which have been received from all the 649 unions. The amount expended in these unions during the half-year was, for in-maintenance, 932,553*l.*; for out-door relief, 1,361,650*l.*; total, 2,294,203*l.* In the half-year ended Lady-day, 1879, the expenditure for in-maintenance was 886,932*l.*, for out-door relief, 1,320,202*l.*, total 2,207,134*l.*; in the half-year ended Lady-day, 1878, the expenditure was, for in-maintenance, 910,191*l.*, for out-door relief, 1,302,789*l.*; total 2,212,980*l.* The expenditure, therefore, in the half-year ended Lady-day, 1879, was less than that in the half-year ended Lady-day, 1878, by 5,846*l.*, or 0·3 per cent.; but the expenditure in the half-year ended Lady-day, 1880, was more than that in the half-year ended Lady-day, 1879, by 81,223*l.*, or 3·7 per cent. In the metropolis the in-maintenance in the half-year ended Lady-day, 1879, cost 268,695*l.*, the out-door relief 97,624*l.*, total 366,319*l.*; in the half-year ended Lady-day, 1880, the in-maintenance cost 273,819*l.*, the out-door relief 102,277, total 376,096*l.*; an increase of 9,777*l.*, or 2·7 per cent.

Courts-Martial in the Army.—A Parliamentary return, showing the number of courts-martial, minor punishments, and desertions in each regiment of cavalry, brigade of artillery, company of engineers, and battalion of infantry in 1878 states that the number of desertions in that year amounted to 5,399 for the whole army; the number in the household cavalry being 16, in the cavalry of the line 724, in the artillery 1,082, in the engineers 161, in the foot guards 171, and in the infantry of the line 3,063. In proportion to its numerical strength, therefore, the artillery lost the greatest number of men by desertion. The number of courts-martial held in 1878 was

large; no fewer than 94 general, 9,499 district or garrison, and 6,984 regimental or detachment courts-martial being recorded in the return. In the artillery, again, the number of district or garrison courts-martial held was especially large, amounting to 2,065; while in the whole infantry of the line the number was only 5,915. The regiment which was in the most unsatisfactory state in 1878 appears to be the 1st Dragoon Guards, 74 district or garrison and 42 regimental courts-martial having been held upon its men, while 84 men deserted, and 2,553 minor punishments were inflicted. The total number of these minor punishments in the whole army was 286,370, of which 621 are recorded against the household cavalry, 20,632 against the cavalry of the line, 44,112 against the artillery, 7,592 against the engineers, 14,054 against the foot guards, and 186,704 against the infantry of the line.

JUVENILE OFFENDERS.—In the twenty-third report of the Inspector appointed to visit the certified reformatory and industrial schools of Great Britain, Major Inglis calls attention to the fact that, while the population of the country has largely increased in the last twenty years, and adult crime has kept pace with the increase of population, juvenile crime has decreased to a very great degree. The comparative tables which appear in the report of adult and juvenile commitments in England and Wales since 1861 give the following results:—In 1861 there were 103,343 adult offenders—72,947 male and 30,396 female. The total has never been smaller in the succeeding nineteen years, the largest total having been in 1877, when there were 168,074 in all—117,899 male and 50,175 female. In 1879 the total was 165,843—118,363 male and 47,480 female. The number of juvenile offenders—*i.e.*, those under 16—in 1861 amounted to 8,801—7,373 male and 1,428 female. The largest total was in 1869—viz., 10,314—8,956 male and 1,358 female. The smallest total was in 1879—viz., 6,810—5,937 male and 873 female. For Scotland the results are somewhat different. In 1860 there were 18,218 commitments of adults and 1,062 of juveniles. In 1879 43,878 of adults and 1,097 of juveniles. During the year 1879 there were no serious outbreaks or misconduct, and there was very little occasion for special interference. There were in the schools 18,387 boys and 4,518 girls receiving a plain English education. In the three years 1876, 1877, 1878 there were sent to sea from reformatories, industrial schools, and training ships 1,740 boys. Since the commencement of the work, out of the 46,367 boys who have passed through the schools up to the end of 1879 no less than 3,565 boys from reformatories and 3,285 from industrial schools and ships, total, 6,850, went to sea. The cost of reformatories is not increasing much. There is a steady annual increase in industrial schools. Day industrial schools are working well wherever they have been established. Truant schools have not been largely adopted, there being only three in existence—London, Sheffield, and Liverpool. The number of reformatory schools is 52 in England and 12 in Scotland, 64 altogether, with 5,756 boys and 1,207 girls under detention. The number of certified industrial schools was 129 on the 31st of December, 1879, with 12,585 boys and 3,275 girls under detention. The expenditure of the reformatory schools for last year was 136,183*l.* 11*s.* 4*d.*, of the industrial schools 303,655*l.* 18*s.*

TWENTY-FIVE YEARS SHIPWRECKS.—The "Wreck Register of the British Isles" published by the Board of Trade gives the following list of wrecks as having occurred in the seas and on the coast of the United Kingdom during the last quarter of a century:—1854 (last six months), 458; 1855, 1,141; 1856, 1,153; 1857, 1,143; 1858, 1,170; 1859, 1,416; 1860, 1,379; 1861, 1,494; 1862, 1,488; 1863, 1,664; 1864, 1,390; 1865, 1,656; 1866, 1,860; 1867, 2,090; 1868, 1,747; 1869, 2,114; 1870, 1,502; 1871, 1,575; 1872, 1,958; 1873 (first six months), 967; 1873-4, 1,803; 1874-5, 3,590; 1875-6, 3,757; 1876-7, 4,164; 1877-8, 3,641; and 1878-9, 3,002—making a total number of wrecks in 25 years of 49,322, and an actual loss of 18,319 lives from these very shipwrecks.

SHIPWRECKS IN 1878-9.—The "Wreck Register" shows 3,002 wrecks, casualties, and collisions reported as having occurred on and near the coasts of the United Kingdom during the year 1878-9 comprised 3,716 vessels, the number of ships in that period being less than the total of the previous year by 720. The number of ships is in excess of the casualties reported, because in cases of collision two or more ships are, of course, involved in one casualty. Thus, 701 were collisions, and 2,301 were wrecks and casualties other than collisions. On subdividing these latter casualties we find that 333 were wrecks, &c., resulting in total loss, 606 were casualties resulting in serious damage, and 1,362 were minor accidents. During the year 1877-8 the wrecks and casualties other than collisions on and near our coasts numbered 2,846, or 545 more than the number reported during the 12 months now under notice. The localities of the wrecks, still excluding collisions, are thus given:—East coast of England and Scotland, 884; south coast, 407; west coasts of England and Scotland and coast of Ireland, 761; north coast of Scotland, 74; and other parts, 175. Total, 2,301. The greatest destruction of human life happened on the east coast of England. Excluding collisions, out of the

2,301 casualties, 2,013 disasters occurred to vessels belonging to this country and its dependencies, and 288 disasters happened to ships which belonged to foreign nations. Of these 2,013 British vessels 1,291 were employed in our own coasting trade, 574 in the (over-sea) foreign and home trade, and 148 as fishing vessels. There were 7 casualties to ships belonging to foreign countries and States employed in the British coasting trade, and 234 to foreign vessels bound to or from British ports, although not actually engaged in our coasting trade, while there were 47 casualties to foreign ships which were not trading to or from the United Kingdom. The register gives figures showing that between 1861 and 1879 the number of British and foreign ships that were wrecked on our coasts, and from which life was lost, was 3,028, resulting in the loss of 14,480 lives.

CAUSES OF SHIPWRECK.—The "Wreck Register" shows that the total number of English ships, excluding collision cases, which appear to have foundered or to have been otherwise totally lost on and near the coasts of the United Kingdom from defects in the ships or their equipments during the year 1878-9 is 31; while 69 happened through the errors, &c., of masters, officers, crews, or pilots, 121 through stress of weather, and 53 from other or unknown causes. The number of casualties arising from the same cause during the year and resulting in serious damage is as follows:—Through defects, 39; errors, 105; stress of weather, 217; other causes, 146. And the cases of minor damage were:—Through defects, 97; errors, 173; stress of weather, 761; other causes, 201. The ages of the vessels wrecked during the period under consideration are also thus given in the register:—Excluding foreign ships and collision cases, 168 wrecks and casualties happened to nearly new ships, and 303 to ships from 3 to 7 years of age; then there are wrecks and casualties to 391 ships from 7 to 14 years old, and to 696 from 15 to 30 years old. Then follow 332 old ships from 30 to 50 years old. Having passed the service of half a century, we come to the very old ships—viz., 32 between 50 and 60 years old; 18 from 60 to 70; 9 from 70 to 80; 2 from 80 to 90; 6 from 90 to 100; and 1 upwards of 100 years old, while the ages of 55 of the wrecks are unknown. Excluding collision, 454 steamships and 1,847 sailing vessels were lost or injured on our coasts last year. Of the 2,013 British ships meeting with disaster in the year, 999 did not exceed 100 tons burden, 627 were from 100 to 300 tons, 146 were from 300 to 500 tons, and 241 were above 500 tons burden. Of the 274 British vessels totally lost, irrespective of collisions, 31 are known to have been built of iron, and of this number 25 were steamships and 6 were sailing vessels. With reference to the force and direction of the wind, this wreck register only gives the winds in 902 out of the 3,002 cases of the year. Dealing with these 902 cases only, we find that the winds that have been most fatal to shipping on and near the coasts of the United Kingdom during the year were as follow:—N. to E. inclusive, 283; E. by S. to S. inclusive, 175; S. by W. to W. inclusive, 292; and W. by N. to N. by W. inclusive, 152.—Total, 902. On distinguishing these last-named casualties near the coasts of the United Kingdom, according to the force of the wind at the time at which the disaster occurred, 370 happened with the wind at forces 7 and 8, or a moderate to fresh gale, when a ship, if properly found, manned, and navigated, ought to be able to keep the sea with safety; while 532 disasters happened when the force of the wind was 9 to 11—that is to say, from a strong gale to a storm.

RIVER AND HARBOUR CASUALTIES.—The casualties to ships in our rivers and harbours were not so numerous during 1878-9 as in the previous year, the numbers having been 763, of which 26 were total losses, 194 were serious casualties, and 549 minor casualties. Of these casualties, collisions numbered 507; founderings, 13; strandings, 152; and miscellaneous, 91. These 763 casualties caused the loss of or damage to 1,320 vessels, of which 697 were British sailing vessels, 543 British steam vessels, 59 foreign sailing vessels, and 21 foreign steam vessels. The lives lost in these casualties were:—In the Thames (above Gravesend), 606, including the 600 who perished from the steamer Princess Alice; in the Mersey (above New Brighton), 10; and in the Medway, 1; total, 617.

LOSS OF LIFE BY SHIPWRECK.—As regards the loss of life in 1878-9, the wreck abstract shows that the number of deaths was 490 from the various shipwrecks enumerated during the twelve months. Of the lives lost, 45 were lost in vessels that foundered, 145 through vessels in collision, 146 in vessels stranded or cast ashore, and 100 in missing vessels. The remaining 54 lives were lost from various causes, such as through being washed overboard in heavy seas, explosions, missing vessels, &c Of the 118 ships from which the 490 were lost, 100 were British, involving the loss of 363 lives, and 18 were foreign, causing the loss of 127 lives.

6. EDUCATION, SCIENCE, AND ART.

Progress of Education in Great Britain.—The following table exhibits the progress of education in Great Britain in schools under Government inspection from 1860 to 1879, distinguishing England and Wales from Scotland:—

Years ended 31st August.	Number of Schools Inspected.	Number of Children who can be Accommodated.	Average number of Children in Attendance.	Number of Children present at Inspection.
	England and Wales (including Isle of Man and Roman Catholic Schools for Great Britain).			
1864	6,470	1,332,553	862,817	983,928
1869	8,592	1,838,416	1,153,572	1,448,299
1874	13,084	2,952,479	1,710,806	2,093,180
1876	14,875	3,483,789	2,007,732	2,448,299
1877	15,187	3,653,418	2,150,683	2,633,198
1878	16,293	3,942,337	2,405,197	2,944,127
1879	17,166	4,142,224	2,594,995	3,122,672
	Scotland (exclusive of Roman Catholic Schools, included above).			
1864	1,421	188,904	148,317	149,363
1869	1,745	237,928	179,214	191,203
1874	2,587	391,592	274,588	314,576
1876	2,912	462,986	332,545	382,224
1877	2,931	535,949	360,413	417,699
1878	2,998	563,481	377,257	439,021
1879	3,003	585,629	385,109	447,801
	Total for Great Britain.			
1864	7,891	1,521,457	1,011,134	1,133,291
1869	10,337	2,076,344	1,332,786	1,639,502
1874	15,671	3,344,071	1,985,394	2,407,756
1876	17,787	3,946,775	2,340,227	2,830,523
1877	18,118	4,189,367	2,511,096	3,050,897
1878	19,291	4,505,818	2,782,454	3,383,148
1879	20,169	4,727,853	2,980,104	3,570,473

Annual Parliamentary Grants for Education in England from 1833 to 1880.

1833—1838	£20,000	1863	£804,002
1839—1841	30,000	1864	705,404
1842—1844	40,000	1865	693,078
1845	75,000	1866	694,530
1846—1850	115,000	1867	705,865
1851	150,000	1868	781,324
1852	160,000	1869	840,711
1853	260,000	1870	914,721
1854	263,000	1871	1,458,402
1855	396,921	1872	1,551,560
1856	451,213	1873	1,299,803
1857	541,233	1874	1,356,852
1858	663,435	1875	1,548,563
1859	836,920	1876	1,707,055
1860	798,167	1877	1,910,000
1861	803,794	1878	2,149,208
1862	842,119	1879	2,481,168
		1880	£2,536,077

The London School Board.—The balance-sheet of the London School Board for the half-year ended on the 25th of March, showed that the income of the Board for the half-year was 692,034*l*., of which 381,034*l*. was on the general account, and 311,000*l*. from loans; to this was added 15,502*l*., making 707,537*l*. in all. Of the general receipts 59,278*l*. came from grants, and 151*l*. from school fees paid by the department. The rating authorities had paid 271,411*l*., being at the rate of 2·64*d*. in the pound; the school fees had brought in 42,352*l*.; the Government in aid of industrial schools had paid 1,712*l*.; the Science and Art Department had paid 4,757*l*.; scholarships and prizes given had amounted to 897*l*., and rents brought in 357*l*. The expenditure included 5,903*l*. for the officers of the staff; 12,466*l*. for enforcing the compulsory bye-laws; 63,387*l*. for the payment of principal and interest on loans; the printing, legal, and other

expenses of administration cost 7,537*l.*; the maintenance of public elementary schools (including 208,244*l.* for the salaries of teachers) came to 277,086*l.*; industrial schools to 22,650*l.*; and capital charges, including purchase of land and erection of buildings, to 195,820*l.* Altogether, the expenditure amounted to 610,628*l.*, and the capital charges to be met by loans to 195,820*l.* It was agreed that the chairman should sign the balance-sheet, three members only dissenting.

SCHOOL ATTENDANCE IN LONDON AND LIVERPOOL.—A return made to the House of Commons, referring to the year ended August 31st, 1879, shows that there was in London, with an estimated population of 3,620,868, accommodation in voluntary elementary schools for 260,193 children, and in Board Schools for 198,716 children. The number of children upon the rolls was —in voluntary schools, 220,684; in Board Schools, 208,669. The average attendance was 164,370 in voluntary, and 161,804 in Board Schools. There were 752 half-timers in the voluntary schools, and 1,666 in the Board Schools. The return includes all the English municipal boroughs of over 100,000 inhabitants. The statistics for Liverpool were: — Population, 538,338; accommodation—voluntary, 57,547; Board, 13,073; on the rolls—voluntary, 57,547; Board, 13,334; attendance — voluntary, 43,361; Board, 10,546; half-timers—voluntary, 239; Board, 15. For Birmingham:—Population, 388,884; accommodation—voluntary, 31,894; Board, 80,561; on the rolls—voluntary, 31,368; Board, 25,959; attendance — voluntary, 21,882; Board, 18,034; half-timers — voluntary, 1,075; Board, 1,502. For Manchester:—Population, 361,819; accommodation — voluntary, 52,041; Board, 14,323; on the rolls—voluntary, 43,360; Board, 13,710; attendance — voluntary, 49,636; Board, 8,602; half-timers — voluntary, 1,607; Board, 499.

SCIENCE AND ART DEPARTMENT.—According to the twenty-seventh report of the Science and Art Department of the Committee of Council on Education, the number of persons who, during the year 1879, attended the schools and classes of science and art in connection with the Department were as follows:—59,519 attending science schools and classes in 1879, as against 57,230 in 1878; and 795,444 receiving instruction in art, showing an increase upon the previous year of 67,570. The total number of persons who received direct instruction as students or by means of lectures in connection with the Department in 1879 is 862,021, showing an increase upon the previous year of 67,474. The attendance at the art and educational libraries at South Kensington and at the National Library of Ireland in 1879 was 83,851—an increase of 7,787 over that of last year. The museums and collections under the superintendence of the Department in London, Dublin, and Edinburgh were last year visited by 2,449,764 persons, showing an increase of 169,887 on the number in 1878. The number of visitors at the local art and industrial exhibitions to which objects were contributed from the South Kensington Museum was 581,922. The total number of persons attending the different institutions and exhibitions in connection with the Department in 1879 was upwards of 3,943,707—an increase of 354,220 over last year's numbers. The expenditure of the Department during the financial year 1879-80, exclusive of the vote for the Geological Survey (which was 22,895*l.* 11*s.* 3*d.*), amounted to 295,229*l.* 12*s.* 8*d.*

ELEMENTARY EDUCATION IN ENGLAND AND WALES.—The report of the Committee of Council on Education in England and Wales for 1879-80 states that in the year ending 31st August, 1879, their inspectors visited 17,166 day schools in England and Wales, to which annual grants were made, containing 24,890 departments under separate teachers, and furnishing accommodation for 4,142,224 scholars. There were on the registers the names of 3,710,883 children, of whom 1,208,016 were (infants) under 7 years of age; 2,333,973 were between 7 and 13; 168,894 were above 13. Of these scholars 3,122,672 were present on the inspectors' visit to their respective schools, while 2,594,995 were, on an average, in daily attendance throughout the year; 2,492,456 having made the requisite number of attendances were qualified to bring grants to their schools, 619,912 (being under 7) without individual examination, and 1,872,544 (above 7), on passing a satisfactory examination in reading, writing, and arithmetic; 1,760,040 were actually presented for such examination, and while 1,084,922 passed the prescribed test without failure in any one of three subjects, 87·53 scholars out of every 100 examined passed in reading, 80·08 in writing, and 73·87 in arithmetic. These figures show a considerable improvement upon the returns quoted in the last report. The accommodation has increased by 199,887 school places (or 5·07 per cent.); the scholars on the registers by 214,991 (6·1 per cent.); and the average attendance by 189,798 (7·9 per cent.); while the number of children individually examined has increased by 197,796 (or 12·7 per cent.) The local effort which has resulted in this improvement may be measured by the continued support derived from voluntary contributions (754,134*l.* from 281,989 subscribers); by an advance in the contributions from rates to the maintenance of Board Schools from 570,193*l.* to 636,792*l.*; and by a rise in school pence from 1,275,073*l.* to 1,372,365*l.* The annual

Government grants to elementary day schools rose in the year from 1,820,661*l.* to 1,981,720*l.*, or from 15*s.* 1¾*d.* to 15*s.* 3¾*d.* per scholar in average attendance; while the grant for the current financial year is estimated at 15*s.* 8*d.* per head.

TEN YEARS WORK OF THE SCHOOL BOARD FOR LONDON.—In his address, on Sept. 30, 1880, to the London School Board on the commencement of its eleventh year, the Chairman, Sir Charles Reed, M.P., gave the following statement of the work of the last ten years:—The population of the elementary school class, between the ages of three and thirteen, is at present, according to the basis adopted in the office of the Registrar-General, 740,577, besides 65,640 children between the ages of thirteen and fourteen, many of whom may be compelled to attend school under Lord Sandon's Act of 1876. The schedules sent in by the visitors of the Board at Easter, 1880, give the number as somewhat less. They show that there has been an increase since 1871 of about 12,000 children in each of the divisions of Finsbury, Greenwich, Hackney, and Tower Hamlets. In Chelsea the increase has been nearly 19,000, and in Lambeth nearly 45,000. Marylebone and Southwark show an increase of 6,000 each, while, as might be expected, the City and Westminster exhibit a decrease of 4,000 and 2,000 respectively. On the whole, we find 120,000 more children dependent on the Board than in 1871. Looking now to the accommodation for scholars of the elementary class, it is not possible to take an earlier starting-point for comparison than the close of the year 1871, when the voluntary schools had furnished their returns and the Board's work had just begun. There was at that time accommodation in all for 262,259 children, or 39·4 per cent. of the estimated population of school age. At Midsummer, 1880, the denominational schools had provision for 269,469 children, or 8,000 more than in 1871, while the Board had provided for 225,236, giving a total accommodation for 494,705 out of a present child population of 740,577, or 66·8 per cent. Thus there are now seats for two out of every three children needing elementary education. During 1879-80 the accommodation afforded by the denominational schools has declined 2,884, while the Board's accommodation has increased by 15,008. This latter increase has involved the acceptance of tenders for twenty-four new schools, accommodating 21,751 children. The average cost per head on the tenders of the twenty-four schools last built by the Board has been 8*l.* 18*s.* 5*d.*, which includes the provision of teachers' rooms, school-keepers' houses, boundary walls, and in several cases extra deep foundations. The Board has now acquired by purchase freehold sites, giving a total area of over 151 acres, henceforth the property of the ratepayers of the metropolis. The average daily attendance has risen in the voluntary schools from 174,301 at the end of 1871 to 180,706 at Midsummer last, at which latter date the Board schools showed a daily average of 192,995; so that now, with accommodation for 44,000 children fewer than the voluntary schools, there is an attendance of 12,000 more. Sir Charles then read a table showing that the child population of the "elementary school class" in London at Midsummer numbered 740,577. For this population accommodation was made, in voluntary schools for 269,469, and in Board schools for 225,236; or, in all, for 494,705. The numbers on the rolls of voluntary schools at Midsummer last was 231,578, and on the rolls of Board schools 238,660—a total of 470,238. The average attendance was, in voluntary schools, 180,706, and in Board schools 192,995—a total of 373,701, showing an increase for the eight and a half years of 88·6 in accommodation, 121·5 on the school roll, and 114·3 in attendance. This average daily attendance in the efficient elementary schools of London of 373,701 children, as compared with the 174,301 at the end of 1871, has been attained, in the opinion of Sir Charles Reed, through the exercise of the School Board's compulsory powers.

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7. EMIGRATION.

EMIGRATION FROM IRELAND.—From the Irish emigration statistics for 1879 it appears that during the past year the number of emigrants who left Irish ports was 47,364 (of whom 299 were not natives of Ireland), an increase of 5,738 as compared with 1878; the number of males being 26,015, or 4,744 more than in the previous year, and of females 21,349, an increase of 994. Of the 47,065 natives of Ireland who left in 1879, 6,125, or 4·6 per 1,000 of the population of the province in 1871 were from Leinster; 17,255, or 12·4 per 1,000 from Munster; 17,619, or 9·6 per 1,000 from Ulster; and 6,066, or 7·2 per 1,000 from Connaught—the total number being equal to 8·7 per 1,000 of the population of Ireland in 1871. The total number of natives of Ireland who left the Irish ports from May 1, 1851 (the date at which the collection of the returns commenced), to December 31, 1879, is 2,541,670—1,356,539 males and 1,185,131 females. The number has gone on steadily increasing from 37,587 in 1876—the year in which the smallest number was registered—to 38,503 in 1877, 41,124 in 1878, and 47,065 in 1879. The numbers fluctuated from 190,322 in

1852 to 37,587 in 1876. Of the 47,065 natives of Ireland who emigrated in 1879, 31,567, or 67·1 per cent., went to the colonies or to foreign countries; and 15,498, or 32·9 per cent., to Great Britain. Compared with the three previous years, commencing 1876—in which year the destinations were first registered—the United States of America in 1879 absorbed 23,361, or 49·6 per cent. of the entire number of emigrants, compared with an average of 13,875, or 35·5 per cent. The numbers to New Zealand have more than doubled since 1876, being 1,558 in that year and 3,166 in 1879. Emigration to Canada has also increased very considerably, the number being 1,622 in 1879, against an average of 609 in the three preceding years. The emigrants to Australia in 1879 only numbered 3,052, against 4,251 in 1878, 3,527 in 1877, and 3,635 in 1876; 267 went to Buenos Ayres, 42 to South Africa, 33 to various parts of Europe, 19 to Asia, and 5 to the West Indies.

EMIGRANT'S PROPERTY.—According to a recent Parliamentary Paper the emigrants (British and Irish) who left the United Kingdom during 1879 numbered 164,274; and the immigrants of British and Irish origin who came into it, 37,936. In arriving at an estimate of the amount to be placed to the account of exports in respect of the money value of the property taken by these emigrants, the Commissioners of Customs state in their annual report, that they have had regard to the value of their outfits, based upon a consideration of the various destinations of the emigrants as given in the Parliamentary Return, and their approximate classification into "cabin" and "steerage" passengers; and to the value of the effects other than outfits assumed to have been carried by them in the cubic space allotted, according to the class of passage, to each. The cost of passage can only be considered as increasing the exports, in so far as it is expended in stores for his sustenance during the voyage out. The remainder is profit accruing to the shipowner in this country. As, however, the cost of these stores is included in the general estimate, presently to be noticed, of the cost of all stores shipped in the United Kingdom for consumption during voyages thence to foreign ports, it forms no part of the present account. With this omission, and subject to the definitions and upon the basis given above, the Commissioners of Customs have arrived at the conclusion that a sum of 6,250,000*l.*, may fairly be set down as representing upon a moderate estimate the total money value of the property which left the country during 1879 with the emigrants of that year, and which does not appear in the official record of exports.

EMIGRATION.—The following table shows the number of emigrants, of British origin only, from the United Kingdom to countries out of Europe; and number of immigrants into the United Kingdom from such countries from 1864 to 1879:—

Years.	Emigrants to					Immigrants.
	British North American Colonies.	United States.	Australia and New Zealand.	Other Places.	Total.	
1864 ..	11,371	130,165	40,073	5,472	187,081	Not ascertained.
1865 ..	14,424	118,463	36,683	5,321	174,891	
1866 ..	9,988	131,840	23,682	4,543	170,053	
1867 ..	12,160	126,051	14,023	4,748	156,982	
1868 ..	12,332	108,490	12,332	5,033	138,187	
1869 ..	20,921	146,737	14,457	4,185	186,300	
1870 ..	27,168	153,466	16,526	5,351	202,511	49,157
1871 ..	24,954	150,788	11,695	5,314	192,751	53,827
1872 ..	24,382	161,782	15,248	9,082	210,494	70,181
1873 ..	29,045	166,730	25,137	7,433	228,345	86,416
1874 ..	20,728	113,774	52,581	10,189	197,272	118,129
1875 ..	12,306	81,193	34,750	12,426	140,675	94,228
1876 ..	9,335	54,554	32,196	13,384	109,469	93,557
1877 ..	7,720	45,481	30,138	11,856	95,195	81,848
1878 ..	10,652	54,694	36,479	11,077	112,902	77,951
1879 ..	17,952	91,806	40,959	13,557	164,274	53,973

8. THE POST OFFICE.

THE LETTER POST. — The enormous growth of the letter post is shown by a table published in the Statistical Abstract of the United Kingdom, which gives the total number of letters annually delivered stated in millions from 1866 to 1879-80.

Years.	Number of Letters delivered in (stated in Millions).				Proportionate Number of Letters delivered per each 100 of the Population in			
	England and Wales.	Scotland.	Ireland.	United Kingdom.	England and Wales.	Scotland.	Ireland.	United Kingdom.
	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.
1866	623	70	57	750	2,919	2,178	1,033	2,494
1867	640	76	59	775	2,962	2,343	1,076	2,555
1868	670	78	60	808	3,062	2,382	1,099	2.639
1869	683	79	62	824	3,081	2,391	1,139	2,665
1870	704	79	64	847	3,135	2,369	1,182	2,714
1871	721	80	66	867	3,168	2,376	1,225	2,751
1872	737	82	66	885	3,195	2,412	1,229	2,780
1873	756	84	67	907	3,237	2,448	1,255	2,823
1874	802	90	70	962	3,377	2,600	1.318	2,946
1875	847	91	71	1,009	3,529	2,600	1,339	3,085
1876	856	91	72	1,019	3,520	2,579	1,354	3,097
1st Jan.—31st March, 1877	218	24	18	259	899	680	338	783
1877—78 ..	884	100	74	1,058	3,601	2,808	1,386	3,163
1878—79 ..	922	99	76	1,097	3,698	2,748	1,419	3,237
1879-80 ..	950	102	76	1,128	3,775	2,801	1,417	3,303

POST CARDS AND POSTAL WRAPPERS.—The following is an account of the number of post cards and postal wrappers issued in the years ending 31st March, 1878 and 1879:—

	Year ended 31st March, 1878.	Year ended 31st March, 1879.
Thin Post Cards	68,531,302	75,314,400
Stout Post Cards	29,865,707	34,701,840
Total Post Cards	98,397,009	110,016,240
Postal Wrappers at ½*d.*	110,967,719	124,874,640
Do. do. 1*d.*	—	13,255,200

NUMBER OF POST OFFICES.—The number of post offices open in the United Kingdom on the 31st March, 1880, was 912 head and 13,300 sub-offices, being an increase of 331 offices on the number last reported. The number of letter-boxes in streets, roads, &c., on the same date was 12,541, being an increase of 661. The total number of places of all kinds at which letters may be posted was thus 26,753, and of these 2,012, or about one-thirteenth of the whole, are in London.

POST OFFICE SAVINGS BANKS.—An account for the year ended on December 31, 1879, printed by order of the House of Commons, shows the total cost for management of the Post Office Savings Banks, under the several heads of salaries and allowances, rent of offices, printing and stationery, and sundry disbursements, as follows:—Salaries, wages, and allowances, 115,163*l.* 1*s.* 7*d.*; maintenance and repair of buildings, 1,935*l.* 19*s.* 6*d.*; rent, 5,000*l.*; water and fire insurance, 70*l.* 2*s.* 6*d.*; furniture and repairs, 182*l.* 1*s.*; fuel and light, 955*l.* 19*s.* 6*d.*; stationery, 9,760*l.* 7*s.* 9*d.*; law charges, 336*l.* 12*s.* 2½*d.*; travelling, 325*l.* 5*s.* 10½*d.*; losses by fraud, default, and accident, 1,045*l.* 11*s.* 2*d.*;

conveyance of correspondence, 30,958*l.* 14*s.* 2½*d.*; incidental expenses, 81*l.* 6*s.* 7*d.*; superannuations and other non-effective charges, 265*l.* 5*s.* 5*d.*; rates, 635*l.* 16*s.* 2*d.*; erection of new office, 25,564*l.*—Total, 192,280*l.* 3*s.* 5½*d.* The payment of postmasters for savings bank business is by results, 5*l.* for every thousand transactions, with a minimum payment of 2*l.*, and the amount thus incurred is, on an average, about 24,000*l.* This is included in the 115,163*l.* for salaries. The following is a statement showing the estimated number of deposits in the Post Office Savings Banks of the undermentioned amounts for the year 1879, together with the percentage of such deposits to the total number; the estimate being based upon the number of deposits of each amount actually received during three days:—

Amount of Deposit.	Number.	Per-cent.
Deposits of 1*s.*	168,455	5·03
,, 2*s.*	208,307	6·22
,, 3*s.*	133,770	4 00
,, 4*s.*	98,092	2·93
,, 5*s.*	257,105	7·68
,, 6*s.*	77,121	2·30
,, 7*s.*	53,866	1·60
,, 8*s.*	54,263	1·62
,, 9*s.*	17,790	·53
,, 10*s.*	353,208	10·55
,, 11*s.* to 15*s.* ..	152,951	4·57
,, 16*s.* to 1*l.* ..	424,367	12·68
,, 1*l.* 1*s.* to 5*l.* ..	913,830	27·30
,, 5*l.* 1*s.* to 10*l.*	249,552	7·46
,, 10*l.* 1*s.* to 20*l.*	118,962	3·56
,, 20*l.* 1*s.* to 30*l.*	62,015	1 85
,, Over 30*l.* ..	4,174	·12
Total	3,347,828	

Notwithstanding the dulness of trade, and the bad harvest in 1879, the excess of deposits over withdrawals continues, and the balance due to depositors shows an increase of a million and a half sterling. Of this increase no less than 91,853*l.* falls to the share of Ireland, and of this amount the counties chiefly affected by the distress—viz., Clare, Cork, Donegal, Galway, Kerry, Mayo, Roscommon, and Sligo — contributed 25,418*l.* The distribution of depositors in the United Kingdom was as follows:—Out of the total of 1,988,477 there were 1,862,944 depositors in England and Wales, or one in 14 of the population, with an average sum of 16*l.* 2*s.* 4*d.* on each account; 53,155 in Scotland, or one in 68, with an average of 10*l.* 15*s.* 5*d.* on each account; while in Ireland there were 72,378, or one in 74, with an average of 19*l.* 11*s.* 8*d.* on each account. The number of post offices at which savings-bank business is transacted was increased during the year by 185, making a total for all parts of the kingdom of 6,016. During the last five years about 1,000 additional offices of this class have been established. No less than 473 penny banks were authorized to invest their money in the Post Office Savings Bank—a larger number than in any previous year. The branches dealing with Post Office annuities and life insurances show little, if any, expansion.

Inland Post.—The number of inland letters dealt with in the year was 1,127,997,500, showing an increase of 2·8 per cent. on the previous year; the number of post-cards was 114,458,400, showing an increase of 2·7 per cent.; the number of book packets and circulars was 213,963,000, or an increase of 8·6 per cent., and of newspapers 130,518,400, or an increase of ·3 per cent. Taking the correspondence of all kinds the number was 1,586,937,000, showing an average of 46 per head of the population, and an increase of 3·3 per cent. over the previous year. The number of letters registered in the United Kingdom during the year was 8,739,191, being an increase of 21·3 per cent., and more than double the number dealt with in 1877, before the reduction of the registration fee. No fewer than 5,762,853 registered letters passed through the chief office, and 47,000 parcels containing Christmas presents were dealt with in that office as compared with 30,000 in 1878. No less than 1,417 letters containing coin and articles of value were observed, which had been posted without registration, a practice which, as Mr. Fawcett points out, throws great temptation in the way of Post Office servants. One of such letters, which contained 200*l.* in bank notes, was stolen in 1877, and eventually the theft was brought home to a letter-carrier, who was convicted, and 175*l.* of the money recovered. Exclusive of postage-stamps found loose to the number of 72,000, no less than 27,224 articles of various kinds escaped from their covers, and were sent to the Returned Letter Office, this number being about half as large again as in the previous year. The total number of returned letters was 5,345,678; of book packets, 3,541,103; of post-cards, 496,446; and of newspapers, 374,741. Of these, 4,570,743 were returned to the writers, and 78,291 re-issued to corrected addresses. In 526,469 cases the writers had given no address to admit of the letters being returned to them. Twenty-one thousand six hundred and twenty-one letters were posted without any address, among which were 1,141 containing cash and bank notes to the amount of 433*l.*, and cheques, bills, &c., for 4,251*l.*; 4,500 letters and packets were stopped on account of the objectionable nature of their contents, such as frogs, lizards, insects, &c., and in one instance a marline-spike. Following the practice pursued at London and Liverpool, the

Provincial Returned Letter Offices send undelivered magazines and periodicals to local hospitals; at Glasgow, they are sent to the Cumberland training ship.

TELEGRAPHS.—As regards the Telegraph Department, the number of messages received during the first six months of the year was less than in the corresponding period of the previous year, but a marked increase then showed itself, and, being more than maintained, brought up the number of messages at the close of the year to 26,547,137, as against 24,459,775 in the previous year, being an increase of 2,087,362. About 313,500,000 words of news were delivered to newspapers, clubs, &c.; 71 new offices were opened for telegraph business, the total number of postal telegraph offices in the United Kingdom being 3,924, in addition to 1,407 railway stations. Various improvements have been effected, notably in the Wheatstone receiving apparatus, and it is proposed to provide additional wires between London and many of the principal towns. The private wire business continues to increase. The revised regulations and tariffs agreed to by the International Telegraph Conference came into operation on the 1st of April last. Ten years have elapsed since the telegraphs were transferred to the State, and from the particulars given it appears that, whereas the telegraph companies had at the time of the transfer 1,992 offices, in addition to 496 railway offices, the Post Office can boast of 3,924 offices of its own and 1,407 railway stations open for telegraph work, or in all 5,331 offices, against 2,488 under the companies. The number of instruments in use by the companies was 2,200, by the Post Office 8,151. In 1869 the total length of submarine cables connecting different parts of the United Kingdom was 139 miles. Last year it was 707 miles. The length of pneumatic tube employed by the companies was 4,844 yards; the Post Office now employs 48,260 yards. The total number of telegraphists employed by the companies was 2,514 (of whom 479 were women), and the number of messengers 1,471. The total number of telegraphists employed by the Post Office last year was 5,611 (of whom 1,556 were women), and of messengers 4,648; but, besides these, many persons are employed in telegraph work who hold no appointment on the establishment, but are paid by the postmasters out of allowances for assistance. In 1869 about 6,500,000 messages were forwarded by the telegraph companies and railway companies transacting public telegraph business. Last year the Post Office forwarded 26,547,137 messages, or four times as many as in 1869.

MONEY ORDERS.—The inland money-order business shows a falling off, but that with foreign countries and the colonies exhibits a satisfactory increase, and a reduction in the rates of commission which came into operation on the 1st of January will tend to its further development. Taking the whole business together, the total number of orders issued was 17,307,573, or a decrease on the previous year of 433,049, the amount of such orders being 26,371,020*l*., or a decrease on the previous year of 932,073*l*.

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9. MISCELLANEOUS.

SEAMEN'S SAVINGS.—A return made by the Board of Trade to the House of Commons contains an account of all deposits received and repaid by the Board of Trade, under the authority of "The Seamen's Savings Bank Act, 1856," during the year ended the 20th November, 1879, and of the interest thereon. The balance on the 20th of November, 1878, was 107,904*l*. 9*s*.; the amount received from depositors during the year was 50,113*l*. 13*s*. 2*d*.; the interest received from the National Debt Office for the year was 3,491*l*. 11*s*. 5*d*.—total receipts, 170,509*l*. 13*s*. 7*d*.; the repayments during the year amounted to 59,670*l*. 9*s*. 5*d*.; the balance on the 20th of November, 1879, was 110,839*l*. 4*s*. 2*d*.—total payments, 170,509*l*. 13*s*. 7*d*. The return contains also a statement showing the number and amount of seamen's money orders issued at ports in the United Kingdom and at ports abroad and paid at ports in the United Kingdom from 1855 to 1879 inclusive. The number issued was 1,141,938, the amount 6,891,544*l*. 3*s*. 1*d*.; the number paid was 1,141,013, the amount 6,885,310*l*. 4*s*. 7*d*.; leaving a balance due by the Board of Trade on account of Treasury orders unpaid on the 31st of December, 1879, of 6,233*l*. 18*s*. 6*d*., representing 925 orders. The amount in hand on the 31st of December, 1879, on account of commission and gain by exchange was 1,637*l*. 18*s*. 1*d*.

PATENT OFFICE RETURNS.—From the annual report of the Commissioners of Patents it appears that during 1879 there were 5,388 applications for patents. This is a decrease of five upon the returns for the previous year, when the number of applications was 5,393, being the highest ever recorded. Of the first stated number no fewer than 1,877 applications—or a little

over one-third—were abandoned, so that only 3,461 proceeded to the final stage and arrived at maturity. In the United States, where an elaborate and expensive system of preliminary examination as to novelty, &c., is carried out, and where the powers of refusal vested in the examiners are unsparingly exercised, the proportion between the patents applied for and those granted is much about the same. Appended to the report are a table and a diagram, by means of which it is shown that from 1852 to 1872 the progressive stamp duty of 50*l*., due at the end of the third year, was paid on 30 per cent. of the patents then in force. The further duty of 100*l*., payable at the end of the seventh year, and which payment carries the patent to the end of the full term of 14 years, was paid on 11 per cent. only. From the report we learn that a new edition of the index to the patents granted from 1617 to 1852 under the old law is in progress. It is being prepared by a staff of specially qualified clerks, who have been appointed for that duty. Of the abridgements it appears that seven volumes have been issued since the date of the last report, which brings the entire series up to 98 volumes. The Designs Department, which forms a subdivision of the Patent Office, has not been inactive, inasmuch as 14,323 certificates of registration were issued, and three designs for sculpture were registered during the year. There were 2,799 applications to register trade-marks, which makes a total of 19,164 applications since 1876, when the Act came into operation. Turning to the cash accounts, we find that the gross revenue of the Patent Office was 189,454*l*., the surplus income, after paying all expenses being 144,230*l*. The chief items are—salaries, 26,608*l*.; stationery and books for the free public library, 2,473*l*.; printing specifications and indexes, inclusive of paper, 12,454*l*. On comparing the revenue and expenditure of the several divisions of the Patent Office, some curious inconsistencies present themselves. Thus, while the issue of the 14,323 certificates of registration of designs cost only 1,020*l*., the receipts being 5,025*l*., the expenditure of the Trade-Marks Registry Office appears to have been 3,700*l*. in order to earn 4,533*l*., although only 2,799 applications had to be dealt with. The publications of the Commissioners of Patents are sent to a number of libraries and other institutions at home and abroad, which form a long list in the appendix to the present report.

THE CHARITY COMMISSIONERS. — The twenty-seventh report of the Charity Commissioners for England and Wales shows that the total number of orders authorising sales of real property of charities since 1853 has been 4,839, and the total amount of the purchase-money 4,610,129*l*. 2*s*. The total sum of stocks and investments held by "The Official Trustees of Charitable Funds" on the 31st of December, 1879, amounted to 8,917,533*l*. 16*s*., divided into 9,925 separate accounts. The work done in the offices of the Commissioners during the year 1879 is thus stated: — Orders sealed, 2,782; schemes established, 143; letters despatched, 24,865; letters received, 31,692: amount of stock transferred to Official Trustees of Charitable Funds, 793,978*l*.; amount of stock sold by Official Trustees of Charitable Funds, 227,521*l*.; number of separate accounts kept by Official Trustees of Charitable Funds, 9,955. During the past year the particulars of 315 charities newly created or previously unrecorded in any official enumeration of charitable trusts have been entered in the register of "Unreported Charities." A total number of 8,705 distinct charities are now recorded in this register. The number of the returns of the annual accounts of charities which have been made to the office during the past year is 24,154, the like numbers for the years 1877 and 1878 being 18,917 and 20,419 respectively. With reference to their proceedings under the Endowed Schools Acts, the Commissioners report that during the year 1879 they published 49 draft schemes, representing endowments to the amount of 28,399*l*. Forty-five schemes were submitted to the Committee of Council on Education, representing endowments to the amount of 22,376*l*. Fifty schemes, with endowments amounting to 15,163*l*., received Her Majesty's approval.

EJECTMENTS IN IRELAND.—A return made to the order of the House of Commons, dated June 28, 1880, of the total number of ejectments executed in Ireland for non-payment of rent in the years 1878 and 1879, compiled from the volume of judicial statistics for 1878, and the forthcoming volume for 1879, is just issued. The aggregates are as follows:—In Leinster, 507 ejectments in 1878 and 683 in 1879; in Munster, 449 ejectments in 1878 and 748 in 1879; in Ulster, 457 ejectments in 1878 and 758 in 1879; in Connaught, 336 ejectments in 1878 and 488 in 1879. The total for the whole of Ireland is 1,749 ejectments in 1878 and 2,677 in 1879; that is to say, an excess of 928 ejectments last year over the number recorded in 1878. The return is signed by Mr. Forster.

CHRONICLE OF EVENTS AND OCCURRENCES.

Home and Foreign.

From November, 1879, to October, 1880.

1879.

Nov. 10. Right Hon. Sir F. W. Truscott entered on his year of office as Lord Mayor of London.

19. Three Irish agitators, Messrs. Killen, Daly, and Davitt, arrested for using seditious language at a land meeting.

20. Defeat and death of Moirosi, the lieutenant of the Basuto leader Secocoeni.

27. Fourth London School Board elected.

—. French Chambers met in Paris after an absence of nine years.

29. The King of Spain married at Madrid to the Archduchess Christine of Austria.

Dec. 1. Attempt to assassinate the Emperor of Russia by exploding dynamite under the Imperial train near Moscow.

2. Secocoeni surrendered to Sir Garnet Wolseley.

12. Attempted assassination of Lord Lytton at Calcutta.

—. Rising of the natives round Cabul; Sir Frederic Roberts retiring to the Sherpur cantonments.

17. The Upper House of the Prussian Diet adopted the Bill for the State purchase of the railways.

21. Resignation of M. Waddington and the French Ministry.

22. Sheffield election; Mr. Waddy (Liberal) elected by 478 votes over Mr. Wortley.

23. Afghans defeated by General Roberts at Sherpur, outside Cabul.

—. Mr. Maule, Q.C., appointed Director of Public Prosecutions.

—. Distress in Ireland Relief Fund established by the Duchess of Marlborough.

26. Telegraphic communication opened between England and the Cape.

28. Fall of the Tay Railway Bridge; passenger train thrown into the Firth and all lives lost.

1880.

Jan. 2. Mr. Parnell, M.P., arrived in New York and commenced his speeches on Irish grievances.

13. Ghuzni seized and pillaged by Mahommed Jan.

14. M. Martel re-elected President of the French Senate and M. Gambetta re-elected President of the Chamber of Deputies.

16. Wali Mahomed Khan appointed to administer the Government of Cabul.

28. Proposal to give a salary to the Chairman of the London School Board set aside, the motion for the previous question being carried.

Feb. 5. Parliament opened by the Queen.

6. Mr. Whitley, Conservative, elected for Liverpool by 2,221 votes over Lord Ramsay.

10. Attempted assassination of the Czar of Russia by exploding dynamite under the Imperial dining-hall.

24. Mr. J. Holms' motion in favour of Quinquennial Parliaments rejected in the House of Commons by 110 to 60.

26. General Loris Melikoff proclaimed as head of the Executive at St. Petersburg.

Feb. 28. Sir Stafford Northcote's resolutions to prevent obstruction in the House of Commons carried by 166 to 20.
29. Piercing of Saint Gothard Tunnel completed.
March 3. Mr. Grissell committed to Newgate on the Speaker's Warrant for his breach of privilege in 1879.
5. Sir Wilfrid Lawson's resolution in favour of local option rejected in the House of Commons by 248 to 134.
8. Lord Beaconsfield announced the determination of the Government to dissolve Parliament.
9. The seventh clause of M. Ferry's Education Bill prohibiting any member of an unauthorized religious congregation from being the head of an educational establishment in France rejected in the Senate by 148 to 129.
—. Lord Beaconsfield's letter to the Duke of Marlborough on the policy of the Government published.
11. The Budget introduced: estimated expenditure, 81,486,473*l.*; revenue, 81,560,000*l.*; alteration in the probate duties; the deficit provided for by a sinking fund.
12. Lord Derby formally seceded from the Conservative party.
20. University Boat Race postponed, the dense fog rendering it impossible for the crews to go over the course.
22. University Boat Race, Oxford winning by two lengths and three-quarters.
23. The French Government decided, at a Cabinet Council, to revive the Decrees for the expulsion of unauthorized religious bodies.
—. The House of Lords decided in favour of the Bishop of Oxford's contention in the case of Julius *v.* the Bishop of Oxford, that a Bishop has a discretion as to sending a case for trial under the Church Discipline Act.
24. Parliament dissolved.
—. Order in Council constituting the new see of Liverpool published in the "London Gazette."
25. The Empress Eugénie left Chislehurst for South Africa to visit the spot where Prince Louis Napoleon fell.
—. The Queen and Princess Beatrice left Windsor for Germany.
29. Decree of the expulsion of the Jesuits published in Paris.
30. Nominations for the City of London and other boroughs.
31. Revenue of the year announced to be 81,265,055*l.*
April 3. Polling for Middlesex, and many other constituencies.
5. Mr. Gladstone returned for Midlothian by 211 votes over Lord Dalkeith.
13. Foundation stone of Melbourne Cathedral, Australia, laid by the Governor.
17. The Queen returned to Windsor from Baden Baden.
23. Mr. Gladstone summoned to Windsor, and accepted office as Prime Minister and Chancellor of the Exchequer.
24. Marriage of Princess Frederica of Hanover with Baron von Pawell Rammingen.
29. Tenth Parliament of Queen Victoria met, and members sworn in.
May 2. The "Bacchante," with Prince Albert Victor and Prince George of Wales on board, arrived at Spithead, having been away from England since September 18, 1879.
3. Mr. Bradlaugh, M.P. for Northampton, requested permission to make an affirmation instead of the oath, on taking his seat in the House of Commons.
8. Sir William Harcourt, standing for re-election at Oxford, on taking office as Home Secretary, defeated by Mr. Hall, by 54 votes.

May 12. Committee appointed to consider Mr. Bradlaugh's case, reported that he could not be admitted to make an affirmation instead of taking the oath.
17. Mr. Parnell elected as leader of the Home Rule Party in place of Mr. Shaw.
—. Strike of cotton operatives at Blackburn, 30,000 hands out.
19. Meeting of the Conservative party at Bridgewater House.
20. Foundation stone of Truro Cathedral laid by the Prince of Wales.
24. Debate on Mr. Bradlaugh's admission to his seat in the House: Sir H. Wolff's motion for his exclusion rejected by 289 to 214.
25. Sir William Harcourt elected for Derby in room of Mr. Plimsoll, retired.
—. M. Léon Say elected President of the French Senate.
26. Sir Garnet Wolseley arrived in England from the Cape.
27. Earl Cowper assumed the office of Viceroy at Dublin.
28. Mr. Goschen arrived in Constantinople as special Ambassador to the Porte.
—. Second Committee to consider Mr. Bradlaugh's case appointed in the House of Commons.

June 3. Burials Bill read a second time in the Lords by 126 to 101.
-. Employers' Liability Bill read a second time in the Commons.
-. The Lower House of the Canterbury Convocation adopted a solemn protest against the Burials Bill.
9. Honorary Freedom and Livery of the Stationers' Company conferred upon the Right Hon. W. H. Smith, M.P.
10. Mr. Gladstone introduced the revised Budget, including the raising of the income-tax from 5*d.* to 6*d.*, a revision of the wine duties, and the conversion of the malt tax into a beer tax.
11. Dr. J. C. Ryle consecrated at York Minster first Bishop of Liverpool.
12. Collective Note of the Great Powers presented to the Porte.
14. Scene in the House of Commons, owing to the attack made by Mr. O'Donnell upon the appointment of M. Challemel-Lacour as Ambassador from the French Republic to the Court of St. James's.
16. Conference at Berlin of Representatives of Great Powers to consider the re-arrangement of the Greco-Turkish frontier.
—. Select Committee of the House of Commons reported in favour of allowing Mr. Bradlaugh to affirm at his own risk.
18. Lord Norton's motion condemning the "higher subjects" included in the fourth schedule of the Revised Code carried.
—. Sir Wilfrid Lawson's resolution in favour of local option carried in the House of Commons by 229 to 203.
19. Hospital Sunday in London.
21. Bill amnestying the Communists voted urgent in the French Chamber of Deputies by 333 to 140.
22. Mr. Labouchere's motion to permit Mr. Bradlaugh to make an affirmation or declaration, instead of taking the oath, rejected in the House of Commons, and Sir Hardinge Giffard's amendment, that he be neither allowed to make an affirmation nor to take the oath, carried by 257 to 230.
23. Freedom of the City of London conferred upon the King of the Hellenes.
—. Mr. Bradlaugh having refused to withdraw from the House, a resolution for his removal by the Serjeant-at-Arms was carried by 274 to 7.

June 24. Burials Bill read a third time in the Lords after a strong protest from the Bishop of Peterborough.
25. Marriage with Deceased Wife's Sister Bill rejected by Peers by a majority of 11.
26. Hammersmith and Wandsworth Bridges declared free from toll by the Prince of Wales.
28. Celebration of the Centenary of Sunday Schools commenced by a combined meeting of Churchmen and Nonconformists at Guildhall.
—. Mr. Gladstone proposed a new Standing Order, on behalf of the Government, to enable Members, at their own risk, to affirm, instead of taking the oath, on entering the House of Commons.

July 1. The Government proposal to accept affirmation instead of the oath from a Member taking his seat in the House of Commons, carried by 303 to 249.
2. Mr. Bradlaugh made a solemn affirmation, and took his seat.
10. The Italian Chamber of Deputies, by a majority of 141, resolved to abolish the grist tax by one-fourth, from September 1, and finally ceasing on 1st January, 1884.
14. Accident in the Risca Coal Mine; 119 men killed.
15. The Ambassadors signed the Collective Note of the Great Powers, calling upon the Sultan of Turkey to accept the boundary between Turkey and Greece laid down by the Berlin Conference.
16. Motion condemning the erection in Westminster Abbey of a statue to Prince Louis Napoleon, carried in the House of Commons by a majority of 15.
—. Queen's Prize at the Wimbledon Volunteer Meeting won by Corporal Scott, 13th Cheshire.
18. Festival in commemoration of the fiftieth anniversary of the independence of Belgium.
22. Abdurrahman formally recognised as Ameer of Afghanistan by the Representatives of the English Government at Cabul.
27. The Empress Eugenie returned to Chiselhurst, after her voyage to Africa to visit the spot where Prince Louis Napoleon fell.
—. Serious defeat, by Ayoob Khan, of British force, commanded by General Burrows, at Candahar.

Aug. 2. Serious illness of Mr. Gladstone.
-. Recall of Sir Bartle Frere from the Cape Government announced in Parliament.
3. Compensation for Disturbance (Ireland) Bill rejected in the House of Lords by 282 to 51.
6. Lord Lytton arrived from India.
-. Lord Claude Hamilton elected for Liverpool by 1,901 votes over Mr. Plimsoll, in the seat vacated by Lord Ramsay.
7. Dr. Tanner completed his forty days' fast at New York.
12. Burials Bill read a second time in the House of Commons by 258 to 79.
16. Sortie of British troops from Candahar; Brigadier-General Brooke killed.
26. Twenty-one hours' sitting in the House of Commons, owing to the obstruction of the Home Rule Members to the Irish Constabulary votes.
—. Mr. Gladstone embarked in the "Grantully Castle" for a sea trip.
—. Whitechapel Church destroyed by fire.

Sept. 1. Complete defeat of Ayoob Khan at Candahar by General Roberts.
7. Parliament prorogued.

Sept. 8. Colliery explosion at Seaham, Durham.
9. Mr. Gladstone issued a letter of thanks for the sympathy shown during his illness.
12. Attempt to destroy the Irish mail train by placing dynamite on the line between Bushey and Watford.
17. Freycinet Cabinet resigned.
20. Admiral Sir Beauchamp Seymour assumed command of the allied fleet at Ragusa, with a view to the proposed demonstration before Dulcigno.
25. Assassination of Lord Mountmorres in Ireland.
28. The twentieth Church Congress met at Leicester.

Oct. 1. International Exhibition at Melbourne, Australia, opened.
2. Demonstration of the Land League at Kilkenny, and speech of Mr. Parnell.
12. The Porte, in a note to the Great Powers, agreed to cede Dulcigno.
15. Consecration of Cologne Cathedral, and celebration of its completion.
16. Expulsion of Carmelites, Barnabites, and Franciscans throughout France.
17. The Rev. Stopford Brooke preached at Bedford Chapel on his secession from the Church of England.
18. Prince Jerome Napoleon refused to act on the suggestion that he should resign his claims to the French throne in his son's favour.
19. Snowstorm in many parts of England, being the only recorded instance of snow in October since 1806 except in 1819 and 1829.
25. Masonic banquet at the Mansion House attended by the Prince of Wales and Duke of Connaught.
26. Lord Salisbury spoke at Taunton on the policy of the Government in Ireland and Turkey.
27. Arrest of Mr. Healy, secretary to Mr. Parnell, M.P., for taking part in the Land League agitation.
28. Topographical Society of London inaugurated at the Mansion House.
30. Rev. T. P. Dale, rector of St. Vedast, Foster Lane, London, imprisoned in Holloway Gaol, under an order signed by the Lord Chief Justice for contempt of the decisions of Lord Penzance, as Dean of Arches.

Nov. 2. The French Cabinet, presided over by M. Grévy, resolved to proceed with the expulsion of the religious bodies throughout the departments.
–. The Lord Mayor Elect (Alderman W. McArthur, M.P.) presented to the Lord Chancellor.
–. Prosecution of the leaders of the Land League commenced at Dublin, informations being lodged by the Attorney-General against fourteen persons, including the following members of the Home Rule party in the House of Commons:—Messrs. Parnell, Dillon, Biggar, Sullivan and Sexton.
–. Election of President of the United States. Majority for the Republican Candidate, General Garfield.
3. Consols quoted at one-sixteenth above par, the highest price reached by the public securities of the country for more than 25 years.

NECROLOGICAL TABLE.

OF DISTINGUISHED AND NOTABLE PERSONS WHO DIED BETWEEN NOVEMBER, 1879, AND NOVEMBER, 1880.

1879.		Age
Nov.	5. CLERK-MAXWELL, James, M.A., F.R.S., Professor of Experimental Physics; at Cambridge	48
	16. SCHNIEFNER, Anton von, orientalist; at St. Petersburg	62
	22. DELANE, John Thaddeus, editor of the "Times" 1841-77; at Ascot	62
	—. DICKENS, Katherine, widow of Charles Dickens; at Gloucester Crescent	65
	—. MONTIJO, Countess of, mother of the Empress Eugènie; at Madrid	84
	23. NAPIER, Mark, Sheriff of Dumfriesshire and Galloway; author and antiquarian; at Edinburgh	82
	24. CRAWSHAY, Henry, Ironmaster; at the Forest of Dean	67
	—. COX, Edward W., serjeant-at-law, author and editor; founder of the "Law Times;" at Hendon	70
	26. STANLEY, Mary, an assistant of Miss Nightingale in nursing the English troops in the Crimean War; at Grosvenor Crescent	66
	29. CHEVALLIER, Michel, political economist; at Paris	83
	30. ROEBUCK, Right Hon. John Anthony, M.P. for Bath 1832-37 and 1841-47, and for Sheffield 1849-68 and 1874-79; at Ashley Place, Westminster	77
Dec.	6. BOXALL, Sir William, portrait painter and director of the National Gallery	80
	—. PORTLAND, W. J. Cavendish Scott-Bentinck, Duke of; at Cavendish Square	80
	—. MENZIES, John, publisher; at Edinburgh	72
	7. SIGURDSON, Jon, author, politician, and antiquary; at Copenhagen	68
	8. HARCOURT-VERNON, Granville, for 50 years Chancellor of the Diocese of York, M.P. for Aldeburgh 1816-20 and for East Retford 1831-47; at Retford	87
	9. ROWE, Richard, author; at Upper Holloway	51
	13. CALCRAFT, John, public hangman; at Hoxton	78
	18. WARREN, Henry, water colour painter; at Kensington	85
	21. UTTERTON, John S., D.D., Suffragan Bishop of Guildford; at Isle of Wight	65
	27. DIXON, Hepworth, author, editor of the "Athenæum" 1853-1869; at 6, St. James's Terrace, Regent's Park	59
1880.		
Jan.	3. KOSSAK, Ernest, feuilletonist; at Berlin	66
	4. COOKE, Edward William, R.A., F.R.S., painter; at Tunbridge Wells	68
	9. BUDD, William, M.D., F.R.S., author of treatise on typhoid fever; at Clevedon	68
	10. PARRY, John Humfreys, serjeant-at-law; at Kensington	63
	—. LOW, General Sir John, K.C.B., member of Council of India; at Norwood	91
	—. LESLIE, Frank, publisher, founder of the "Illustrated Paper;" at New York	59

		Age
Jan.	16. DE GRAMONT, Duc de, diplomatist; at Paris	60
	19. FAVRE, Jules, statesman; at Paris	70
	20. LANDSEER, Thomas, A.R.A., engraver; at St. John's Wood	83
	—. CAZENOVE, Philip, stockbroker, philanthropist; at Clapham	81
	—. BARRY, Edward Myddleton, R.A., Professor of Architecture and Treasurer, Royal Academy; at Burlington House	50
	26. DUNCOMBE, Hon. Augustus, D.D., Dean of York; at York	66
	28. ERLE, Sir William, Chief Justice of the Common Pleas, 1859-66; at Liphook, Hants	86
	29. OAKELEY, Frederick, canon of the Roman Catholic church; at Islington	78
	—. LOCKE, John, Q.C., M.P. for Southwark; at Eaton Square	74
	30. STEPHENS, Archibald J., LL.D., Chancellor of the Diocese of St. Davids	71
Feb.	7. HAMILTON, Henry Parr, M.A., F.R.S., Dean of Salisbury; at Salisbury	85
	23. GLINKA Thedor Nikolaevich, poet; at St. Petersburg	91
March	13. O'NEIL, Henry A., R.A., artist; at Victoria Road, Kensington	63
	—. BELL, Thomas, F.R.S, zoologist; at Selborne	87
	27. ANDERSSON, Nils Johann, botanist; at Stockholm	59
April	8. POWNALL, Henry, J.P., for 26 years Chairman of the Middlesex Sessions; at Russell Square	87
	9. HAMPTON, Right Hon. John Pakington, G.C.B., Lord; at Eaton Square	81
	11. SHARPEY, William, M.D., F.R.S., physiologist; at Torrington Square	77
	13. FORTUNE, Robert, Oriental traveller, botanist and author; at Gilston Road	67
	16. KENEALY, Edward Vaughan, LL.D., M.P. for Stoke-on-Trent, 1875-80	58
	24. GROSSMITH, George, humourist, journalist, and public entertainer; at the Savage Club	69
May	8. PETERS, Dr. Christian A. F., astronomer; at Kiel	74
	10. GOSS, Sir John, organist of St. Paul's Cathedral, 1838-72, and Composer to H.M.'s Chapels Royal; at Brixton	79
	18. DE MUSSET, Paul, author; at Paris	76
	—. ANSTED, T. D., Professor of Geology at King's College, London	66
	—. MILLER, William Hallowes, M.D., F.R.S., Professor of Mineralogy; at Cambridge	79
	26. CURWEN, Rev. John, promoter of the Tonic Sol-Fa System and Founder of the Tonic Sol-Fa College; at Heaton Mersey	63
	27. TAYLOR, Alfred Swaine, Professor of Medical Jurisprudence	74
	29. PLANCHE, J. R., author and dramatist; at Chelsea	84
June	3. RUSSIA, EMPRESS of, Maria Alexandrovna; at St. Petersburg	56
	7. CAVE, Right Hon. Sir Stephen, G.C.B., late Postmaster-General and M.P. for Shoreham; at Cranbury	59
	20. KILMOREY, Earl of, "the Father of the Peerage;" at Isleworth	93
	—. PETERSEN, Carl, Danish Arctic Explorer	63
July	6. EGAN, Pierce, novelist; at Lee	65
	11. MILLER, John Cale, D.D., Vicar of Greenwich and Canon of Rochester; at Greenwich	67
	12. TAYLOR, Tom, author, dramatic art critic, and editor of "Punch;" at Wandsworth	62

		Age
July	18. BEADON, Sir Cecil, K.C.S.I.; at Latton, Wilts	63
Aug.	5. KINGSTON, W. H. G., author of books for boys; at Willesden Lane	67
	—. WYATT, Thomas Henry, F.R.I.B.A., architect	73
	6. FITZGERALD, Sir Peter George, Bart., Knight of Kerry; at Valentia	71
	7. FIRMAN-DIDOT, Hyacinth, publisher; at Chandai, France	86
	10. AURIOL, Rev. Edward, M.A., Prebendary of St. Paul's, and Rector of St. Dunstan's, Fleet Street; at Mecklenburg Square	75
	13. WRIGHT, Rev. Henry, Prebendary of St. Paul's and Hon. Sec. of the Church Missionary Society, drowned in Lake Coniston	47
	14. STRATFORD DE REDCLIFFE, Viscount, Ambassador to the Porte, 1841–58; at Trent	94
	16. NEILSON, Lilian Adelaide, actress; at Paris	30
	21. KEAN, Ellen (Mrs. Charles), actress; at Bayswater	75
	25. WALTON, Elijah, painter; at Bromsgrove	47
Sept.	1. WILLS, William Henry, working editor of "Household Words" and "All the Year Round," and coadjutor of Charles Dickens in those papers; at Welwyn	70
	—. WATSON, James, publisher, Chairman of the Statistical Committee of the London School Board; at Endsleigh Gardens	64
	—. COWPER, Ebenezer, maker of printing machines; at Birmingham	76
	19. KELLY, Sir Fitzroy, Lord Chief Baron; at Brighton	84
	22. GRACE, Frederic, cricketer; at Basingstoke	29
	23. JEWSBURY, Geraldine, author of works of fiction	68
	25. TARLETON, Sir J. Walter, K.C.B., Admiral; at Warwick Square	69
Oct.	4. OFFENBACH, Jacques, composer; at Paris	61
	16. CHARLESWORTH, Maria Louisa, authoress; at Nutfield	61
	20. THESIGER, Right Hon. Alfred Henry, Lord Justice of Appeal; at South Eaton Place	42
	21. DOMVILLE, William Thomas, C.B., M.D., Inspector-General of Hospitals and Fleets; at Haslar	57
	24. RICASOLI, Baron, Statesman; at Rome	71
	—. SINCLAIR, Baron, James St. Clair; at Constantinople	77
	26. GUILLEMIN, Alexandre Marie, painter; near Fontainebleau	63
	27. HARCOURT, Charles, actor; at Charing Cross Hospital	42
	31. BOUCH, Sir Thomas, engineer of the Tay Bridge; at Moffat	58
Nov.	1. BRAND, Ferdinand, Comptroller of the City of London, 1854-78; at Crouch End	79

NOTE.—The above Table contains the names of 91 distinguished persons, of whom 18 died at the age of eighty or more, and of these four were over ninety.

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